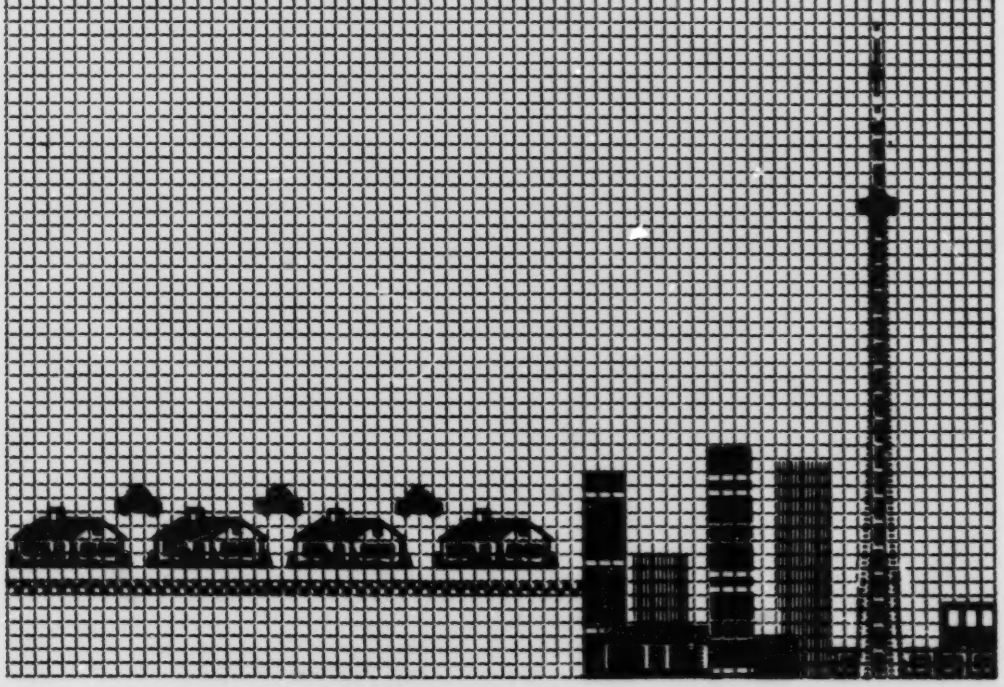
The City of Toronto

Community Health Survey

A description of
the health status
of Toronto residents

1983



City of Toronto, Department of Public Health

CITY OF TORONTO
DEPARTMENT OF PUBLIC HEALTH

THE CITY OF TORONTO
COMMUNITY HEALTH SURVEY:
A DESCRIPTION OF THE HEALTH STATUS
OF TORONTO RESIDENTS
1983

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ACKNOWLEDGEMENTS

This first report of the City of Toronto Community Health Survey represents the fulfillment of nearly three years of activity and a major objective of the Community Health Information Section of the Department. That is, to establish a new community health status data base on the model of the Canada Health Survey. Dozens of employees of the Department of Public Health, other City departments and other agencies contributed to the success of this project, but a few individuals deserve special mention.

Lynn Elinson, the Department's Epidemiologist, did much of the early conceptual work on the project and the design of the questionnaire. She also oversaw the establishment of the project team and the launching of the survey prior to her taking a leave of absence from the Department in order to further her studies in epidemiology.

We owe a great deal to the outstanding commitment of four interviewers: Grace Cerrito, Mary Raudssus, Mary Jose Romano and Mina Wong. All are multi-lingual and dedicated many evenings and weekends, always in good cheer, to accomodate the rigorous survey schedule.

Gail Lyons was the Project Coordinator during the survey. She contributed to the final survey questionnaire and the methods employed, trained and supervised the interviewers, carried out much of the analysis and drafted much of this report.

We are grateful to the City's Translation Bureau and the Computer Services Division for their timely cooperation, and to the Canada-Ontario Employment Development Program for partial funding of this survey. We are also grateful to the Institute of Behavioural Research at York University, to the Health Information Statistics Group and to the reviewers who so carefully critiqued this report.

Finally, we owe special thanks to the 981 citizens of the City of Toronto who freely gave us their time and their trust, and helped us move one step closer to the goal of making Toronto the healthiest city in North America.

William Mindell
Coordinator, Community Health Information

ABBREVIATIONS

BPWB	Brief Psychological Well-Being Scale
CDC	Centers for Disease Control, Atlanta
CHS	Canada Health Survey
NCHS	(U.S.) National Center for Health Statistics
NSPHPC	(NCHS) National Survey of Personal Health Practices and Consequences
RDD	Random digit dialing
TCHS	(City of) Toronto Community Health Survey

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EXECUTIVE SUMMARY

INTRODUCTION

The City of Toronto Community Health Survey (TCHS) was conducted by the Department of Public Health Community Health Information Section during the summer and fall of 1983. Its purpose was to: 1) provide health status information about a representative sample of all Toronto residents; 2) identify particular groups in the City whose health is at risk; 3) provide information about lifestyle as it relates to health status; 4) provide an opportunity to study the relationships among health problems, health behavior, and health practices; 5) document cultural and socio-economic differences in the health status of the City's population; and 6) to serve as a benchmark for measuring changes in health status and behavior among City of Toronto residents.

The purpose of this first report on the TCHS is threefold. First, it describes in some detail the research design and procedures used by the Community Health Information Section to conduct the survey. Second, it presents highlights of the health status and behavior of Toronto residents in a general fashion, using composite variables of all the health status indicators used in the study. Finally, it discusses some of the planning implications of the community health survey data.

RESEARCH DESIGN AND PROCEDURES

Based on the methodology and questionnaires from the Canada Health Survey, the U.S. National Center for Health Statistics, and the U.S. Centers for Disease Control, the TCHS studied a representative sample of the City's population age 15 and older. Using the technique of random digit dialing, households were sampled and interviewed by telephone with a 30-minute questionnaire. The questionnaire was translated into Portuguese, Italian, Chinese and Greek. Data were collected and coded over a four-month period in the summer and fall of 1983 by a specially trained team of interviewers assembled for the study. Processing of data was carried out by the Department's statistical services group with particular attention paid to accuracy and consistency.

Thus far, a bivariate analysis on the TCHS data has been completed. This report compares the health status and behaviour by sex and age group (15-34, 35-54, and 55+). Statistical significance of 0.01 and 0.05 are considered to be worthy of note. The primary test of significance used in this report was the chi-square.

HIGHLIGHTS OF RESULTS

The Sample

1. 981 interviews were completed with a response rate of 80%.

2. A comparison of demographic variables from the TCHS sample and those of the City population showed that:

   - males were under-represented in the TCHS;
   - non-English speaking mother tongue was under-represented;
   - low ($10,000) income level was under-represented, and the highest level ($30,000) was over-represented;
   - divorced individuals were over-represented in the TCHS.

3. In addition, there was under-representation in the TCHS among Portuguese, Italian and Polish groups.

4. Compared to the 1981 census for the City of Toronto, the TCHS under-represents men in three age groups: 25-29, 65-69, and 75+.

5. Because of these differences between the study sample and the Toronto population, any attempts to generalize about the City population must be done cautiously. However, these results are generally consistent with the experience of other surveys and telephone surveys in particular. On the whole, we can be reasonably confident in making inferences about the health status of Toronto residents, based on estimates from the TCHS samples.

Self-Assessed Health Status

6. 19% of the TCHS sample reported that their health was fair or poor. There were no differences between men and women.

7. In the age group 55 and older, 31% reported that their health was fair or poor.

Selected Health Problems

8. The following percent prevalence for selected health problems was reported for the City of Toronto:

   - diabetes 2%
   - heart trouble 5%

- asthma 7%
- hay fever, other allergies 27%
- emphysema, chronic bronchitis 3.5%
- persistent cough, shortness of breath 9%
- migraine headaches 6%
- serious back problems 12%
- cancer 3%

Except for respiratory problems, these findings are comparable to the rest of Canada as a whole.

9. 47% reported that they had been diagnosed with 1 or more of the above selected health problems.

10. 35% of TCHS respondents report at least one respiratory problem (when hay fever and other allergies are included).

11. When hay fever and other allergies are excluded, 14% have respiratory problems.

Health Behaviours

12. 22% of Toronto residents consulted a physician in the 2 weeks prior to interview.

13. 11% stayed overnight in a hospital during the previous 12 months.

14. 10% had received out-patient hospital services during the previous 12 months.

15. Women were more likely than men to have been hospitalized overnight.

16. Health care utilization in Toronto is similar to that of Canada as a whole.

17. 40% of the TCHS sample had taken medication or drugs of some kind within the 2 days prior to the interview.

18. 13% take more than 1 kind of drug.

19. There is more medication and drug use among women than men and in the oldest age group compared to younger ages.

20. 20% of all drugs taken by Toronto residents are non-prescription.

21. 28% of Toronto residents experience a limitation in activity because of health. 10% experience major activity limitation, and this is more likely in females than males.

22. The group with the greatest amount of activity limitation is females, 55 years of age or older.

Behavioural Risk Factors

23. 50% of those surveyed felt that lifestyle was a major factor influencing their health status.

24. Torontonians are somewhat more likely than Canadians as a whole to drink alcohol. 76% of the Toronto sample takes at least one drink per month. 65% takes at least 1 drink per month across Canada according to the Canada Health Survey.

25. On the other hand, 9% of the TCHS sample reported that they are heavy or chronic drinkers, compared to 12% in the Canada Health Survey nation-wide sample.

26. Unlike Canadians as a whole, heavy drinkers in Toronto are more likely to be middle aged (35-54) rather than in the youngest age group (age 15-34).

27. Men in general were more likely to be heavy drinkers in Toronto than women.

28. Only 36% of all Torontonians currently smoke tobacco cigarettes. This is similar to Canada as a whole.

29. Fewer women than men are smokers.

30. Men are not significantly more likely than women to be heavy smokers.

31. 49% of the study sample reported themselves to be physically active (the highest category). 7% do not engage in any physical exercise.

32. Men and women are equally sedentary in the three age groups, but, in general, men are more likely to be active at any age.

33. 15% of the TCHS sample report that they had been told by a health professional at some time in their life that they had high blood pressure.

34. 93% of hypertensives who had medication prescribed were complying with their physician's advice. Compliance was similar for males and females.

Preventive Health Practices

35. 74% of the Toronto sample reported they "always" or "nearly always" use a seatbelt when they ride in a car.

36. 84% of all women and 72% of men report having had their blood pressure checked within the 12 months prior to their interview. These percentages are significantly different.

37. Toronto residents are more likely than other Canadians to have seen a dentist in the course of a year (61% compared with 50% of Canada Health Survey respondents). However, only 1 in 5 Torontonians uses dental floss or a water pick on a daily basis.

38. 12% of Toronto women have never had a Pap smear, compared to 21% of Canadian women in 1979.

39. 62% of all women in Toronto have had their breasts examined by a physician within the past year of the interview. 33% say they practice breast self-examination and 20% practice it on a regular monthly basis.

PLANNING IMPLICATIONS

The Toronto Community Health Survey fills an important gap in the information component of the Toronto Department of Public Health. In combination with our other data sources, it will now be possible to target groups of citizens who suffer ill health or are at high risk of disease, and identify the areas of the City in which they reside. In addition, this survey, when repeated periodically, will enable the Department of Public Health to monitor changes in behavior and health status.

While this first report on the TCHS provides only a preliminary analysis of the vast amount of data available, it served three very useful planning purposes. First it identifies some of the important health problems for City of Toronto residents. For example, extrapolating from the data:

- Between 80,000 and 105,000 Toronto residents over the age of 15 feel their health could be better.

- More than 123,000 Toronto residents may be unable to perform some of the tasks of daily life because of their health.

- Between 44,000 and 67,000 Torontonians are taking at least one form of medication without a doctor's supervision.

- More than 62,000 Torontonians have been diagnosed with hypertension and for more than 13,000 of these people, their hypertension is uncontrolled.

Second, this report also identifies certain high risk groups, insofar as sex and age are concerned. For example:

- Somewhere between 24,000 and 45,000 male Torontonians are heavy drinkers.

- More than 73,000 young people (age 15-34) are current smokers.

- Between 15,000 and 29,000 adult males, age 35-54, do not have their blood pressure checked annually.

The third important planning implication of this TCHS report relates to future analysis. Several important problem areas have been identified and must be explored in order to assess the causes of these problems. For example, we need to know:

- why Torontonians have more respiratory problems compared to Canada as a whole

- the kinds of medications being taken without a prescription

- whether certain ethnic and income groups are at higher risk of disease than others

- the explanation for heavy drinking among Toronto males.

It must be stressed that this report is only the beginning of the ongoing analysis of the TCHS. The results of the survey have suggested directions for future programs, and further analysis will sharpen the picture of target groups for these interventions. This information will be integrated into the Department's ongoing planning process and details of specific programs will be incorporated into upcoming special topic reports.

I INTRODUCTION

In 1978, a landmark document was adopted by the Local Board of Health. Public Health in the 1980's (11) called for the development of an information capability in the Department of Public Health that would enable it to be self-regulating and responsive to continuing change in the City of Toronto. The report also called for the scarce resources of the Department to be focussed on primary prevention of health problems. These goals and objectives were later focussed in the Departmental Programs Policy Paper (13) and in the results of the recent City-wide priorities process, Planning for Health in the City of Toronto (16), which outline the components of a prevention-oriented information system. As we approach the midway point of the 1980's, most of these components are in place or in the process of being created. This report is an account of a key component of the information system: the City of Toronto Community Health Survey (TCHS).

Periodic community health surveys are increasingly being used by health professionals to assess the need for services, to plan programs to meet these needs, and to evaluate the impact of programs (1). In the City of Toronto Department of Public Health, which already has in place an elaborate system of morbidity and mortality data, a community health survey fills a conspicuous gap: it can provide health status information about Toronto residents; identify particular groups in the City whose health is at risk; provide information about lifestyle, as it relates to health status; and provide an opportunity to study the relationships among health problems, health behaviors and health practices. A community health survey also can document cultural and socio-economic differences in the health status of the City's population, the importance of which was affirmed again by the Local Board of Health in The Unequal Society: A Challenge to Public Health (14). Finally, the first health survey conducted in a community provides a benchmark: the impact of subsequent changes in Public Health policy and programs can be measured against this benchmark.

The City of Toronto Community Health Survey was conducted by the Department's Community Health Information Section during the summer and fall of 1983. A representative sample of the City's population aged 15 and older was interviewed by telephone about certain health problems and behaviors, health practices and risk factors such as cigarette smoking, alcohol use and physical exercise. Socio-demographic information about each household also was collected. Thirty-minute interviews were completed with 981 persons, comprising 80 percent of the Toronto residents who had been randomly selected to participate in the Study.

This report is the first of several that will be based on TCHS data. It has three purposes. First, it documents the methods of the Toronto Community Health Survey. In that respect, it serves as a foundation for the analytic reports on special topics which will follow this report. Secondly, it describes the health status of Toronto residents in a general fashion, using composite variables of all the health status indices used in the study. Finally, it suggests the implications for the planning process of having community health survey data for the first time.

II RESEARCH DESIGN AND PROCEDURES

The survey instrument and methodology were modelled after several earlier studies of health status in Canada and the United States. Several of the questionnaire items are based on the Canada Health Survey (CHS), a nation-wide study of the health status of Canadians that was carried out in 1979 (26). Most of the remaining questions were taken from the Behavioral Risk Factor questionnaire prepared by the Centers for Disease Control in Atlanta (CDC), the National Health Interview Survey (NHIS) conducted by the U.S. National Center for Health Statistics (NCHS), and a National Survey of Personal Health Practices and Consequences that was conducted for the NCHS in 1979 and 1982 (30,35,36). Some questionnaire items were developed especially for the Toronto Community Health Survey. The methodology of the survey was based on procedures which had been documented by the CDC and NCHS (5,6,7,17,22,28,47), incorporating modifications suggested by the Institute for Behavioral Research at York University (4).

A. The Questionnaire

The questionnaire was designed with two considerations in mind, the perceived need in the Department of Public Health for specific kinds of information and the validity of the questionnaire items. The decision about what kind of information to collect in the City's first community health survey was reached through a process of consultation with Department staff in Central Resources and in the four health areas. The particular questionnaire items were chosen on the basis of their validity, that is, the extent to which they measure what they are intended to measure. To that end, questions which had been validated through their use in previous studies were adopted wherever possible. In the case of CDC and NCHS items, which had also been used in telephone interviews, it was possible to use the exact form of the questions. Comparability of data for these items is thus assured, which makes possible yet another check on the validity of the questions. Because the Canada Health Survey collected data

through a personal interview and through a self-administered questionnaire it was necessary to modify items from that study. Essentially, this meant that the format of questions had to be simplified since it was not possible to give respondents visual clues. Questionnaire items used by Statistics Canada to collect socio-demographic information in the Census also had to be modified in some cases. The questionnaire was pretested with 35 Toronto residents chosen at random, and some of the new and modified questions were reworded to improve their clarity.

Validity also was a concern during translation of the questionnaire into the major languages other than English used by Toronto residents: Portuguese, Italian, Chinese and Greek. In each case, the questionnaire was translated from English into the second language, and then translated back into English by a second translator. Professional translators were used in both cases, and the project coordinator adjudicated discrepancies between the original and back-translated English versions. The questionnaire also was translated into French (and a francophone interviewer was available); since francophone respondents did not require this instrument, it was not back-translated. Two interviews were conducted in Spanish, using the Portuguese version of the questionnaire. In the remaining cases where respondents could not be interviewed in their mother tongue, judgments were made on a case-by-case basis by the project coordinator and the interviewer as to whether the language barrier would jeopardize the validity of the questionnaire.

One other broad issue of validity should be addressed in this discussion of instrumentation: how accurate is the information about health status obtained in a telephone interview, compared with information obtained in a personal interview? There is a large and growing body of literature around this issue, a survey of which suggests that health events (including both health conditions and health care utilization) are reported more accurately over the telephone. On the other hand, personal interviews yield richer information. On the whole, the evidence suggests that the quality of data obtained in telephone interviews may not be significantly different from information obtained in personal interviews. Discrepancies may be due to interviewing style rather than to deficiencies in the instrument (2,5,6,25,28,31,47,48,49).

We turn now to a brief discussion of the specific questionnaire items used in the Toronto Community Health Survey. The question on self-assessed health status is perhaps the best-validated item in the study. For several years, the NCHS has begun the National Health Interview Survey by asking respondents to compare their health with other persons their age. The results of this highly subjective measure were then compared with more objective health

status indicators -- including actual health status and utilization of health care services. In its report on this validation study, the NCHS concludes that the self-assessment item can be used to predict the health status of all major socio-demographic groups in the United States. That is, both men and women, without regard to socio-economic status or cultural background, seem to assess their own health quite accurately (30).

Questions dealing with specific health problems or conditions were adapted from the Canada Health Survey. Unlike that nation-wide study, however, we did not attempt to collect information about all the health problems from which a respondent might be suffering. The Health of Canadians (26) presents a comprehensive list of health problems: our list is selective. The Canada Health Survey obtained much of its information indirectly, by enquiring first about symptoms and health behaviors; we simply asked respondents directly whether they suffered from a given condition and when -- if ever, it had been diagnosed (or in some cases, how long they had suffered from the condition). The following conditions were selected for investigation in the Toronto Community Health Survey: diabetes, heart problems, asthma, hay fever or other allergies, emphysema or chronic bronchitis, persistent cough or shortness of breath, migraine headaches, serious back problems and cancer. The 'persistent cough or shortness of breath' item was intended to identify undiagnosed respiratory problems. So far as we know, there are no data with which to compare our findings on this item.

The Brief Psychological Well-Being Scale (BPWB) was included in the questionnaire to assess mental health. By asking respondents a set of specific questions about how they had felt during the previous month, we obtained a measure of their emotional well-being. The BPWB scale is a shortened version of the General Well-Being Scale (21,32) and was developed specifically for telephone surveys.

Health behavior items were drawn from a variety of sources. Health care utilization items were adopted from the NCHS National Survey of Personal Health Practices (NSPHPC) (33). The items on drug use were based on the Canada Health Survey but were elaborated to provide more information on both the kind and number of drugs used. The Drug Benefit Formulary (40) was used to classify responses. An elaborate set of questions on activity limitation was taken from the Canada Health Survey, and it was supplemented by an additional set of items used in the NSPHPC questionnaire. The reference period for these questions varied. We felt that respondents would recall consultations with a physician for the preceding two-week period, whereas their recall of hospitalization probably would be reliable for the previous 12 months. Drug use was recorded for the previous two days. The

questions about activity limitation referred to chronic situations, where respondents had been unable for a long period of time to go about activities that are routine for most other people.

Five sets of risk factor items were adopted intact from the CDC. These items, on alcohol use, cigarette smoking, physical exercise, hypertension and obesity were developed by the CDC for use in state and local health unit telephone surveys of behavioral risk factors. The items had been used in more than 20 American surveys at the time we adopted them and the CDC continues to report new additions to its data base each quarter (8,9,10). These items thus have the advantage of extensive field testing in telephone surveys. Content validity of these questions is discussed in the results section.

Items on health practices were derived from the National Survey of Personal Health Practices and Consequences. Data from these items can be compared with findings reported in The Health of Canadians on seatbelt usage, preventive dental practices and Pap smear tests. New questions were developed on breast self-examination to determine whether women are practicing this preventive measure, and on the public's perception of the quality of Toronto's drinking water.

Socio-demographic items were adopted from the Canada Health Survey and from the Canadian census. A set of questions recommended by Statistics Canada was used to obtain information about the occupation of both respondent and head of household. These data were coded using the Standard Occupational Classification (44) and then were recoded into sociologically-meaningful categories (39). Data on perceived health risks associated with respondents' occupation were collected with a new, open-ended question, and classified using a scheme developed for this purpose by the Department's Industrial Hygiene Consultant.

B. The Sample

Telephone numbers have become increasingly popular among survey researchers as a sampling unit. Non-coverage bias is minimal in a jurisdiction such as Metropolitan Toronto, where 98.8 percent of households are served by Bell Canada (45). The City of Toronto Community Health Survey used a version of a telephone sampling strategy known as Random Digit Dialing (RDD). The advantages of this particular technique will be described briefly.

The simplest and most common sampling technique for telephone surveys is to select numbers from telephone directories. The problem with this technique is that a large proportion of households are excluded because their telephone number is not

listed in the directory. The Institute for Behavioural Research at York University estimates, for example, that 23 percent of the households in Metropolitan Toronto are not listed in the directory. There appear to be statistically significant differences between households with listed numbers and those which are not listed (4). In addition, it is estimated that residential mobility in the City of Toronto may be as high as 30 percent each year (42). There have been various attempts to modify telephone directory sampling and overcome these problems by selecting a random number that is based somehow on a listed number; however, these techniques suffer from the problem that the probability a number will be selected is unknown and/or unequal.

Random digit dialing is a technique that eliminates the problem of bias due to unlisted numbers, and guarantees that all telephone numbers have a known and equal probability of being selected. RDD involves the creation of a sampling frame consisting of all the telephone numbers which are logically possible in a given jurisdiction. For the Toronto Community Health Survey, for example, this meant identifying the telephone prefixes that are used in the City of Toronto, then adding all the possible combinations of the remaining five digits. A random sample of telephone numbers is then drawn from this frame.

The major drawback of random digit dialing is that it involves a great deal of unproductive dialing. In Ontario, for example, only 23 percent of the telephone numbers that are logically possible are actually connected to households (4). As a result, the technique has been refined in an attempt to reduce unproductive dialing and retain the strict probability features of random digit dialing. The refinement that was employed in this study involves the elimination of non-working banks of numbers (that is, ranges of telephone numbers defined by the fourth digit) prior to data collection. This version of RDD appears to be the most cost efficient technique available for local health surveys that are conducted infrequently.

The distinction between the sampling and data collection stages of a survey is somewhat blurred when RDD is employed. Once a random sample of telephone numbers has been selected, interviewers must place a series of telephone calls to each number to determine whether it is a working household number. These calls are made according to a strict 'call rule' so that: (a) all working household numbers have an equal chance of being called when someone is at home; and (b) certain assumptions can be made about the inevitable 'no answer' and 'busy' (NAB) signal (22). Strictly speaking, this call rule is part of the sampling strategy. Once an eligible household has been contacted, the interviewer must carry out the second stage of sampling, that is, the selection of a respondent from among the members of the household. Trodahl and

Carter's random selection tables (Appendix A) were used for this purpose in the Toronto Community Health Survey (19:247).

C. Data Collection

Interviews averaging 30 minutes in length were conducted by telephone from an office in the Department of Public Health. A special team of interviewers was assembled for the study. Interviewers were selected on the basis of their linguistic skills (each was fluent in at least two languages) and their ability to deal with the public by telephone. They were trained for 10 days in the substance and the procedures of the study.

Data were collected over a four-month period in the summer and fall of 1983. There are advantages and disadvantages to interviewing over a prolonged time period with a small team of researchers. To the extent that seasonality is an element of health status, there may be a systematic bias in some of our results. And using very few interviewers may also have introduced an element of interviewer bias. On the other hand, the interviewers were extremely competent by the end of the data collection period, and many respondents who had initially declined to participate in the study were again approached successfully (25). Most people would rather be interviewed in person than over the telephone, given a choice (24), but experimental research has shown that certain interviewer techniques can improve commitment and feedback, and overcome the perceived drawbacks of a telephone interview (31). Because TCHS interviewers conducted so many interviews, they became very familiar with the instrument and the rationale for the study. As a result, they became quite adept at obtaining respondents' commitment, giving explicit instructions, and providing the appropriate feedback.

The call rule that was employed during data collection was based on CDC and NCHS procedures (7,17), adapted to the special conditions of a small team operating over a long period of time. Interviewers worked from 1 to 9 pm weekdays, and regular daytime hours during the weekend. A week of interviewing included a weekend and three weekdays, immediately before or after the weekend. Eight calls were made to each telephone number in the sample -- in a pattern which included day, evening, and weekend calls. If no contact had been made after eight calls, the pattern was repeated following a two-week break. Most contacts were made in the evenings and on weekends, so that afternoons were largely taken up with calls to non-residential and non-working numbers. If contact had not been made after two patterns of calls (i.e. 16 calls), a morning call was made before the telephone number was declared 'NAB'.

Care was taken to verify the authenticity of the study for respondents, and to protect their confidentiality. A special 'hot line' was installed so that respondents and other members of the public could telephone the project coordinator and discuss the study. Confidentiality between interviewer and interviewee was assured because interviewers knew only the telephone number of the people they interviewed. Telephone numbers appeared only on a 'screener', a three-page leaflet used for the first stage of sampling. Each screener also was assigned an arbitrary identification number; only this number was recorded on completed questionnaires. Both the project coordinator and the interviewers maintained a log of the screeners, and all screeners and completed questionnaires were stored in a locked cabinet.

The final point to be made about data collection is the opportunity afforded for quality control by the telephone methodology (47). Interviews were conducted from a centralized location under the supervision of the project coordinator, so it was possible to continually monitor the interviewers' performance and provide them with feedback -- both formally and informally. Formal procedures included a regular evaluation of each interviewer, weekly policy briefings, and validation of approximately five percent of the completed interviews.

D. Data Processing

The data were processed by members of the Department's Statistical Services Section. Questionnaires were edited by the Chief Clerk, who also coded some of the open-ended questions. Three data input clerks were responsible for entering the data into a SAS (Statistical Analysis System) system file, and the complete data set was verified under the supervision of the Senior Statistical Clerk. Computer programming at this stage was performed by the Health Information Section's Data Analyst. Respondents are identified in the computer files by an identification number; their telephone numbers have not been included.

E. Data Analysis

Bivariate analysis of most of the data has been completed. This report represents a summary of that analysis. It describes the health status of Toronto residents, and reports differences in the health status of males and females, and among three age groups. These age groups are defined as young (age 15-34), middle-aged (35-54), and old (55 and older) in relation to one another.

In the discussion of findings that follows, the term 'significant' is used to mean that the relationship being described is statistically significant, that is, it is not simply the result of chance. The Chi Square test of significance was used for this

purpose. Data reported in the text as significant are statistically significant at the .01 level or better, which means that there is just one chance in a hundred that the difference being described (between males and females on a given health status measure, for example) is a result of random processes (and not the result of male/female differences). The terms 'slight' or 'somewhat' are used to describe differences which are significant at the .05 level. All of the data which form the basis for conclusions drawn in the text appear in tables in the appendix, where significance levels are reported.

Preliminary analysis indicates that there may be significant cultural and socio-economic differences in the health status of Toronto residents. A multiple regression analysis of these differences will be forthcoming. In addition, TCHS data forms a part of Department studies underway currently on cigarette smoking, alcohol use, occupational health, and employment and health status.

III RESULTS

Interviews were completed with 981 residents of the City of Toronto. This sample is representative (within the limitations described below) of the non-institutionalized population of the City, aged 15 and older. Ten percent of the interviews were conducted in a language other than English.

A. Quality of the Data

Three general considerations about the quality of TCHS data will be addressed in this section. How representative is the TCHS sample of the City's population? How valid are the data; that is, to what extent do they actually indicate the health status of Toronto residents? These two considerations acknowledge the potential for non-sampling errors in survey data. The third consideration is the potential for sampling error: to what extent are we justified in making inferences from any sample to a population? It is possible to make precise estimates of the accuracy of the data in this respect. Estimation of non-sampling errors is somewhat less precise.

1. Representativeness

The first concern in a telephone survey is whether the results are systematically biased by the exclusion of people in households without telephones. We have already noted that 98.8 percent of the households in Metropolitan Toronto have telephones. We suspect coverage in the City of Toronto may be slightly lower,

though it is not likely lower than the Canadian proportion of 98 percent. There is no doubt that households without phones have distinct characteristics. One thinks immediately of Toronto's rooming house population, as well as the transients who tend to concentrate in the core of any large metropoliton area. A comparison of U.S. households with and without telephones revealed that the group without telephones tended to be low income, Hispanic (a large minority in the U.S. population), persons whose family head was under 25 and/or divorced, separated or never married, and those living alone or in large families of 7 or more (3). The telephone population is consistently more health-care advantaged, according to the U.S. study. Because of the relatively high level of telephone coverage in urban Canada, we did not anticipate that non-coverage bias would be a serious problem. The demographic make-up of the TCHS sample indicates that only one of the above-mentioned groups was under-sampled: persons in very large families. This is probably due less to non-coverage bias than to our sampling technique. Men in certain age-groups also were under-sampled; this may be due in part to the exclusion of rooming house occupants and transients. It is unlikely that any type of survey could adequately measure the health status of these segments of the City's population.

Survey results also can be biased because some people will agree to be interviewed, and others will not. The amount of bias in the data due to non-response can be assessed by looking at response rate, item non-response, and the characteristics of respondents and non-respondents. The issue is whether non-respondents are different, as a group, from respondents.

Table 1 includes the response rate for the Toronto Community Health Survey. Before we look at that part of the table, however, it will be useful to examine the final distribution of the telephone numbers selected for the first stage of sampling. In the expectation that as many as three-quarters of the telephone numbers would turn out to be ineligible or result in non-interviews, and given the desired final sample size of 1,000, an initial sample of 3,831 telephone numbers was randomly selected from the sampling frame. (The initial sample actually consisted of 20 independent replicates of approximately 200 telephone numbers each.) Slightly more than two-thirds of these telephone numbers were ruled ineligible and were eliminated from the sample. Forty-eight percent were non-working or non-residential telephone numbers. Twenty percent of the telephone numbers were determined to serve households outside the city limits. Six percent resulted in non-interviews.

Table 1

Percentage Distribution of Final Results
and Response Rate

	N	%
Interviews Completed	981	26
Non Interviews	245	6
(Refused)	(159)	(4)
(Other)	(86)	(2)
Ineligible Cases	2597	68
(Non-Working and Non-Residential)	(1816)	(48)
(Not in City)	(781)	(20)
Indeterminate Cases	8	.02
TOTAL	3831	100

Response Rate	
Lower Bound Estimate	79.5
Upper Bound Estimate	80
CASRO* Estimator	80

*Council of American Survey Research Organizations

Strict eligibility rules were observed. The most difficult of these rules to implement was the requirement that respondents live within the City of Toronto. Unfortunately (for survey researchers), many of the telephone exchanges that serve City of Toronto residents also are used in adjacent areas of Metropolitan Toronto. For example, half of the '69' exchange is in the City of Toronto, and the other half is in the City of Scarborough. To complicate matters, many residents of neighbouring municipalities appear to identify themselves with Metropolitan Toronto (or perhaps, even, the Toronto-Centred Region), instead of their area municipality: when asked, they say they live in 'Toronto'. We are confident that all of the telephone numbers remaining in the sample serve households in the City of Toronto. But we would be remiss to minimize the problem posed for telephone surveys when the study area cannot be clearly defined, either by telephone exchange or some clearly identifiable political boundary.

The status of just eight telephone numbers could not be determined. These are cases where the call rule produced no answer. Telephone surveys typically report a far larger number of 'no answer or busy' cases. We were fortunate, again, to have Bell Canada's assistance in determining whether or not our NAB's were working numbers. Most were not, according to Bell's records, so they were categorized as ineligible.

The telephone numbers that were ruled eligible -- working household numbers in the City of Toronto, comprise the final sample. It is at this point that we begin to refer to the household as the first stage sampling unit. There are 1,226 of these units in the TCHS sample. Interviews were conducted in 981 of these units, with a respondent chosen randomly who then becomes a second-stage sampling unit. We were unable to complete interviews in 245 of the sampling units. The response rate is calculated on the basis of these three numbers. In Table 1, completed interviews also are shown as comprising 26 percent of the initial sample. The figures for response rate, on the other hand, show completed interviews as a proportion of the final sample, that is, as a proportion of eligible sampling units. Interviews were completed in 80 percent of eligible sampling units.

Response rate is calculated in two ways, to satisfy emerging conventions in survey research (50). In the first, which includes lower bound and upper bound estimates, the response rate is calculated with and without the indeterminate cases in the denominator. This method is useful because the range between the upper and lower bounds indicates the proportion of indeterminate cases in the initial sample. The CASRO estimator (18) assigns indeterminate cases to the denominator in proportion to the telephone numbers in the initial sample which are known to be eligible. Because there are few indeterminate cases in the TCHS sample, the range between lower bound and upper bound estimates is very small: 79.5 percent to 80 percent. For the same reason, the CASRO procedure estimates the TCHS response rate as 80 percent.

Two general categories of non-interviews are shown in Table 1: refusals and others. Refusals comprise four percent of the initial sample and, more to the point, 13 percent of the final sample of eligible households (N=159). This category includes respondents and other household members who explicitly declined to participate; respondents or households with answering machines who did not return our calls; respondents who could not be interviewed during the interviewing period; and respondents who broke off the interview before giving sufficient information. It had been predetermined that an interview would not be considered complete unless it included all health status information with the exception of the questions on psychological well-being, as well as

the age and sex of the respondent. The initial refusal rate was much higher, in many cases because of a language barrier, in other cases because telephone surveys seem to be associated in many peoples' mind with market research. A second call was placed to all refusals, in the appropriate language wherever possible, and the purpose of the study was explained in more detail. The respondent selection procedure was completed for 96 of the 159 refusals, so we know that 40 of the refusals were men and 56 were women.

The category of other non-interviews comprises two percent of the initial sample, and seven percent of the final, eligible sample. This category includes individuals whose health was so poor they could not be interviewed by telephone (N=28; largely, but not exclusively the aged), respondents who were absent for the duration of the study (N=28), and respondents who could not be interviewed in one of six languages for which there was an instrument and an interviewer (N=30). Ukrainians were the largest group excluded for the latter reason (N=7), followed by Polish (N=5) and Hungarian (N=3) residents. Eight other languages were identified for which a special instrument and interviewer would have been required. Although many family or household members offered to translate, to assist infirm respondents with the interview, or to substitute for absent respondents, it had been decided not to accept proxy respondents. A few interviews were completed with aged and infirm respondents were later judged to be unreliable; these have been counted as non-interviews and were not replaced in the sample. Of the 'other' non-interviews, 31 were males, 36 were females, and the gender of 16 was not determined. In terms of the bias introduced into TCHS estimates of health status by these non-respondents, it is clear that we have underestimated health problems among the aged.

We turn now to the characteristics of respondents, in order to assess how well the TCHS sample represents the population of the City of Toronto. Data on the population of the City of Toronto are derived from the 1981 Census of Canada and the 1982 Revenue Assessment for the City. It is important to bear in mind, however, that these data sources also have their biases, particularly with respect to certain ethnic and low income groups and transients.

Tables 2,3,and 5 compare the distribution of the TCHS sample on selected socio-demographic characteristics with the population of the City of Toronto. A test of homogeneity was performed for each characteristic, to determine whether the sample and population are similar in composition. The results of this test also are shown in the tables. To summarize: Table 2 indicates that we have under-represented males, Torontonians whose mother tongue is not English, the lowest income group, those with the lowest level of

education, and larger households. We also appear to have over-represented single and divorced Torontonians, although it is likely that some respondents who said they were single are actually living in a stable common-law relationship. The questionnaire did not solicit this information.

Table 2

A Comparison of the TCHS Sample
and the Population of the City of Toronto (age 15 and over)
on Selected Socio-Demographic Characteristics

Characteristic	TCHS %*	Population+ %	Test Statistic**	
1. Sex:				
Males	42	48	7.7	
Females	58	52	7.1	
(N)	(981)	(503,861)	14.8	df=1
2. Age:				
15-34	46	46	0.0	
35-54	29	28	0.3	
55 or older	25	26	0.2	
(N)	(981)	(503,040)	0.5	df=2
3. Mother Tongue:				
English	67	61	4.8	
Non-English	33	39	7.7	
(N)	(979)	(503,010)	12.5	df=1
4. Visible Minorities:				
Yes	12.7	12.3	0.1	
No	87.3	87.7	0.0	
(N)	(977)	(496,505)	0.1	df=1
5. Family Income:				
Less than $10,000	20	23	4.1	
$10,000 - 19,999	26	28	0.8	
$20,000 - 29,999	22	21	0.3	
$30,000 or more	33	29	4.9	
(N households)	(911)	(241,260)	10.1	df=3

Table 2 (continued)

Characteristic	TCHS %*	Population+ %	Test Statistic**	
6. Education:				
Some Secondary or Less	53	54	0.4	
Some Post-Secondary	24	29	6.5	
University Degree	23	17	20.2	
(N)	(977)	(496,505)	27.1	df=2
7. Full-time Students:				
Yes	9.5	11	2.4	
No	90.5	89	0.3	
(N)	(977)	(496,505)	2.7	df=1
8. Marital Status:				
Single	39	36	2.2	
Married (incl. separated)	46	52	8.2	
Widowed	9	8	0.8	
Divorced	7	4	20.7	
(N)	(975)	(503,005)	31.9	df=3
9. Size of Household:				
One Person	41	37	4.1	
Two Persons	27	27	0.1	
Three or More Persons	32	35	3.2	
(N households)	(977)	(241,275)	7.4	df=2

* Percentages may not add to 100 because of rounding.

+ 1981 Census of Canada and 1982 Revenue Assessment for the City of Toronto.

**The test statistic used to assess the homogeneity of sample and population characteristics is the Chi Square test for goodness of fit. Chi Square and the appropriate degrees of freedom are shown, along with the relative contribution of each category of a given characteristic to the total Chi Square or homogeneity between sample and population on that characteristic.

These results are consistent with the experience of other surveys, and telephone surveys in particular (24). Nonetheless, we are concerned about the lack of homogeneity on two characteristics: the bias against males in the sample is very large; and while the bias against non-Anglophones is not large, it is a serious matter in a multi-cultural community such as the City of Toronto.

Table 3 elaborates the comparison of sample and census for the major linguistic groups in Toronto. The groups most under-represented in proportion to their size in the City's population are Portuguese, Italians, Poles, Ukrainians, and Germans. Anglophones, Philippinos and Native Americans are over-represented. To some extent this is due to the language barrier problem: it is very difficult to represent Toronto's many European linguistic groups in a survey. It is also possible that the composition of the City's population has changed since the last census. The Italian community, for example, has been gradually moving north and west, out of the City, for several years. It is reasonable to assume that out-migration has continued. Another indicator of Toronto's multiculturalism is the proportion of the population in visible minority groups. According to census data on the ethnic origin of Toronto residents, 12.4 percent of Torontonions belong to a visible minority group (23). In the TCHS Sample, 12.5 percent belong to visible minorities.

The ratio of males to females (age 15 and older) in the City of Toronto is 48:52. In the TCHS sample, the ratio is 42:58. Males are typically under-represented in surveys, even in personal interview surveys, but usually not to this extent. In order to understand how this bias might influence TCHS findings about health status, we have tried to determine how it occurred, and who was missed. Proceeding by a process of elimination, we looked first at respondent selection procedures, then at response bias, and finally at selection bias in broader terms. The respondent selection procedure was not likely the source of the problem: the procedure requires the random distribution of four different respondent selection tables among first-stage sampling units. The results indicate that this was accomplished satisfactorily.

Table 3

Multiculturalism:
Distribution of Mother Tongue Groups
in the TCHS Sample
Compared with the 1981 Census, City of Toronto, Age 15 and Over

Mother Tongue	TCHS %	Census %	Test Statistic*	
OFFICIAL LANGUAGES:				
English	66.9	61.4	4.8	
French	2.2	1.9	0.3	
AMERINDIAN LANGUAGES:	0.2	.04	5.6	
NON-ENGLISH, NON-FRENDH AND NON-AMERINDIAN LANGUAGES:				
Portuguese	6.1	7.4	2.2	
Chinese	4.8	4.6	0.1	
Italian	4.2	6.2	6.2	
Greek	1.6	2.2	1.5	
Polish	1.5	2.2	2.2	
Ukrainian	1.5	2.2	2.1	
Baltic Languages	1.3	1.2	0.3	
Magyar (Hungarian)	1.3	1.0	0.8	
German	1.2	2.0	2.7	
Philippine Languages	1.1	0.6	4.3	
Spanish	0.8	1.1	0.6	
Czech and Slovak	0.7	0.4	1.7	
Netherlandic Languages	0.6	0.4	1.3	
Yugoslavian Languages	0.5	0.9	1.7	
Other Asian	1.0	1.6	2.1	
Other European	0.9	0.9	0.0	
Other	1.3	1.7	0.7	
(N)	(979)	(503,010)	41.350	df=19

*The test statistic used to assess the homogeneity of sample and population is the Chi Square test for goodness of fit. Chi Square and the appropriate degrees of freedom are shown, along with the relative contribution of each category of a given characteristic to the total Chi Square or homogeneity between sample and population on that characteristic.

We then considered the possibility of response bias, specifically, that women were more likely to cooperate than men. It requires an extreme interpretation of the data available on refusals to support that conclusion. Earlier, we described the breakdown of males and females (and gender unknowns) among refusals and other non-interviews. If all eligible respondents who refused to be interviewed are added to the sample total, and all refusals of undetermined gender are assumed to be males, the ratio of males to females in the TCHS sample would be 45:55. This approaches the actual distribution of males and females in the City's population, but we have no reason to suppose that this extreme assumption is warranted. In fact, there are more female than male respondents among the refusals for whom respondent selection was completed. If the gender-unknown refusals are distributed equally, when added to the sample total, the ratio of males to females remains 42:58. We conclude that the hypothesized tendency for men to refuse more than women is not, in itself, responsible for the imbalance between males and females in the TCHS sample.

At this point we began to think about selection bias in broader terms. We have already mentioned how the non-coverage bias of telephone surveys may have systematically excluded the predominantly male transient and rooming house population of the City's core. We also have excluded many of Toronto's unemployed: just 5 percent of the TCHS sample who were in the workforce were unemployed at the time of their interview, compared with more than 10 percent of the Toronto workforce in the summer and fall of 1983 (Table 4). We also know that low income, poorly-educated and elderly segments of the population typically are less likely to respond to telephone surveys (24). In Table 5, we see that compared to the 1981 census of Toronto's population, there are three age groups in particular where men are under-represented: age 25 to 29, 65 to 69, and 75 or older. (The larger the p value, the more similar are the sample and census). It is possible that males were under-sampled, in part, because we under-sampled certain groups in the population in which males predominate. This, together with an (assumed) slightly higher rate of refusals among men may explain the sex bias in the TCHS sample. To some extent, the imbalance may also be due to chance.

Regardless of the source of the sex bias, we must be concerned about whether this imbalance in the sample affects the distribution of other socio-demographic characteristics. In general, TCHS men are less likely than the women in the sample to be Caucasian, born in Canada, Anglophone, single or divorced, working class (in terms of occupation), and to have a secondary school diploma but no university degree. For this reason, TCHS findings are presented for males and females separately, as well as for the sample as a whole. Differences in health status between males and females should be interpreted with some caution.

Table 4

Employment Status and Occupation
in the TCHS Sample

Employment Status	N
Working	628
Laid off or on Strike	21
Unemployed	31
Retired	110
Unable to Work Because Disabled	22
Keeping House	72
Full-time Student	93
No Response	4
	981

Respondent Occupation (includes respondents working, laid off or on strike, unemployed and retired)	
Professional, Manager, Self-Employed	123
Semi-Professional, Middle-level Manager	174
Supervisor, Foreman	61
Skilled Clerical or Craft	135
Semi-skilled Clerical or Craft	176
Unskilled Clerical or Craft	103
No Response	18
	790

Table 5

Distribution of Males and Females by Age
in the TCHS Sample,
Compared with 1981 Census, City of Toronto*,
Age 15 and Over

Age Group	Test Statistic ** Chi-Square	p-value
15-19	0.529	.47
20-24	0.295	.59
25-29	5.593	.02
30-34	2.019	.16
35-39	2.324	.13
40-44	0.633	.43
45-49	0.000	.99
50-54	2.594	.11
55-59	0.829	.36
60-64	0.002	.97
65-69	4.374	.04
70-74	1.913	.17
75+	5.866	.02

* 1981 Census of Canada.

** The test statistic reported is the Chi Square for a 2-way table of sex (male, female) by source (TCHS sample, 1981 census), controlling for age. Significance levels are calculated assuming one degree of freedom.

The final threat to representativeness in a sample survey is item non-response: if substantial numbers of respondents decline to answer specific questions the reliability of these estimates will be in doubt. Item non-response is not a problem in the Toronto Community Health Survey. Most respondents answered all questions. As a result, there are missing values on very few variables. Only when we asked about household income did a substantial proportion of the TCHS sample decline to answer; response to this item, 93 percent, is relatively high by survey research standards (5,24,27). Non-respondents to the income question are not significantly different from respondents in terms of other socio-demographic characteristics. Less than one percent of the sample declined to answer one or more of the questions on alcohol consumption and cigarette smoking. The only health status indicator with missing values exceeding one percent is the Brief Psychological Well-Being Scale: respondents who declined to answer one or more of the well-being questions could not be scored on the BPWB scale. Just one and one-half percent of respondents could not be scored. The number of respondents for all variables is 981, unless otherwise indicated in the tables.

What conclusions can be drawn about the representativeness of the TCHS sample, given response rate, response bias, and item non-response? On the whole, we can be reasonably confident in making inferences about the health status of Toronto residents, based on estimates from the TCHS sample. The TCHS response rate and item non-response are quite good, by survey research standards (31,41,46). In terms of response bias, two things must be said. First the TCHS sample tends to over-represent the groups in society which are health-care advantaged (51) -- a common failing of surveys. All estimates of the health status of Toronto residents should be read with this qualification in mind. Secondly, there is a serious sex bias in the TCHS sample. This problem has been obviated by presenting findings for males and females separately for the sample as a whole and within each of the three age groups. Therefore, when any generalizations between sample and population are made, differences between respondents and non-respondents must be kept in mind.

2. Validity

The second major consideration about the quality of TCHS data is its validity, that is, how accurately it measures the health status of Toronto residents. The best assurance of the validity of TCHS data comes from our use of questions which had already been validated by other health agencies and research organizations. These questions were described in some detail in the Research Design section of this report. For the most part then, the issue of validity was addressed in the design stage of the survey. It also will be addressed in the section on Findings,

which follows: there is a degree of internal consistency in the findings which provides prima facie evidence of the validity of the data. (See especially Tables 6,12 and 15).

The data also are validated to some extent by their concurrence with the findings of other studies, especially the findings of the Canada Health Survey. TCHS findings will be compared with the results of the nation-wide survey wherever possible. The health status of Toronto residents is not significantly different on most indicators from the health status of other Canadians. Where it is different, there is reason to expect that it might be different. Both similarities and differences have been noted: they confirm our sense that the data are valid and that further examination of differences in health status among cultural and socio-economic groups in the City of Toronto is warranted.

In addition, some evidence of test-retest reliability was provided during the data collection stage. Approximately five percent of the interviews were validated. Completed questionnaires were selected at random and respondents were called and asked certain questions again. With very few exceptions, respondents gave the same answers in both test and retest interviews.

It is common practice in surveys of alcohol consumption and cigarette smoking to assume under-reporting. We have no evidence on this issue, except that response to both sets of questions was unusually high, while the findings are quite similar to the results of other nation-wide surveys. TCHS respondents may have been reassured by the anonymity of a telephone interview; or they may have found it easier to answer the questions, adjusting their reports of drinking and smoking downward to conform to our expectations. It is unlikely that many respondents would exaggerate their smoking and drinking habits. With the usual allowance for under-reporting then, TCHS data on these sensitive behaviors can be assumed valid.

Although the Brief Psychological Well-Being Scale is based on a validated scale and had been used before, it had never been validated itself. Preliminary tests of scalability performed on the shortened scale with TCHS data indicate that all of the questions tap a single underlying dimension. It also has a strong positive relationship with a criterion variable, Bradburn's Happiness Question (29), and its relationship with most of the other health status variables is positive and significant. The BPWB scale is scored positively from 0 to 12 so that a score of 12 indicates a very positive sense of well-being. For this analysis, we have categorized respondents as either "low" or "high" on the scale: a score of eight was chosen as the cut-off point since close to half the sample (47 percent) scored eight or lower. To say that half of the TCHS sample score positively on the BPWB is

thus a matter of definition, but this benchmark will enable us to compare the well-being of the various groups within the sample.

3. Sampling Error

The results of any survey are estimates of the true value in the population. We estimate, for example, that the mother tongue of 67 percent of Toronto residents is English. According to the 1981 census of the City of Toronto, the 'true' population value is 61 percent. We appear to have over-estimated the proportion of Torontonians who have English as their mother tongue (and so has the census, in all likelihood), partly for the reasons set out previously. There is a selection bias in all surveys against individuals for whom English is a second language; and to some extent our question ("what language did you first learn and use in childhood") may not be a valid indictor of mother tongue. Both of these sources of error could result in over-estimation of Anglophone Torontonians. We turn now to a third source of error--sampling error. This kind of error can be measured much more precisely than the nonsampling errors discussed above.

Sampling error exists because we interviewed a sample, not the entire population of the City of Toronto. It is possible, given the sample size and variability, to estimate 'confidence intervals,' (i.e., ranges within which the true population value is likely to fall) for each of the sample proportions reported. Appendix B is a table of 95% confidence intervals around the observed sample proportions from the TCHS. This table will enable the reader to estimate the approximate confidence intervals for each percentage which appears in the report, taking into consideration both the observed percentage, as well as sample size. It should be pointed out that as sample size decreases and percentages get smaller, confidence intervals (and precision of the estimates) get wider.

For example, for the estimate of Anglophone Torontonians (67%), we can be 95 percent sure that it is accurate within plus or minus three percentage points (-2.8, +2.9). However, calculation of these confidence intervals assumes a simple random sample. In fact, the TCHS sample is somewhat more complex, in that the households selected in the first stage of sampling are clusters of unequal size. Because this sampling technique under-represents individuals in larger households, the Institute for Behavioural Research recommended that estimates of sampling error obtained from Appendix B should be adjusted by 25 percent. Accordingly, we can say that the TCHS estimate of the proportion of Anglophones in Toronto is accurate within plus or minus four percentage points, 95 percent of the time.

B. Findings

1. Self-Assessed Health Status

According to the survey results, 81 percent of Toronto residents believe their health is excellent or good. TCHS respondents were asked to compare their health with other persons their age, and to rate their health status as excellent, good, fair or poor. This initial self-assessment provides a useful summary of the health status of the various groups in the City's population: although it is a highly subjective measure, we have found significant relationships between self-assessment and other, more objective measures of health status.

Table 6 indicates that respondents who say their health was fair or poor are more likely to report that they have been diagnosed with hypertension, or that they suffer from one or more of the other specific health problems we investigated: diabetes, heart problems, asthma, emphysema or bronchitis, persistent cough or shortness of breath, migraine headaches, serious back problems and cancer. As a group, these respondents also are more likely to experience some limitation in routine activities because of their health, and to have taken medication in the two days prior to their interview. Respondents who say their health is fair or poor also are more likely to score lower on the Brief Psychological Well-Being Scale. And finally, they are more likely to have consulted a doctor in the two-week period prior to their interview or to have stayed overnight in a hospital in the previous year. By contrast, respondents who say their health was excellent or good, compared with other persons their age, are much less likely to report the above health problems or behaviors.

On the whole, then, self-assessment appears to be a valid indicator of the health status of Torontonians; accordingly, we will begin our profile of the health status of Toronto residents with their self-assessments.

There is no significant difference in the self-assessed general health status of men and women: 19 percent of the men in our sample say their health is fair or poor, and 20 percent of women assess their health unfavourably. Aging makes a significant difference, however, as we would expect: Figure 1 shows that 31 percent of respondents who are 55 years of age or older say their health is fair or poor. Respondents in the youngest age group (age 15-34) are slightly more likely than those in the middle-age group (age 35-54) to assess their health as fair or poor (see Table 7).

Table 6

Relationship Between
Self-Assessed Health Status
and Selected Health Problems and Behaviors

Health Problem or Behavior	p*
Diagnosed Hypertensive	.0001
Uncontrolled Hypertension	.0001
Diabetes	.0001
Heart Problem	.0001
Asthma	.0002
Hay Fever or Other Allergies	.24
Emphysema, Chronic Bronchitis	.0001
Persistent Cough, Shortness of Breath	.0001
Migraine Headaches	.0001
Serious Back Problem	.0001
Cancer	.0005
Psychological Well-Being	.0001
Activity Limitation	.0001
Drug Use	.0001
Consultation with Physician	.0001
Hospitalization (in-patient)	.0001
Hospitalization (out-patient)	.27

*Probability that the relationship between self-assessment and Health Problem or Behavior is due to chance, based on Chi Square statistic. All relationships are positive.

FIGURE 1

Self-Assessed Health Status and Age

Among Males and Females in the TCHS Sample

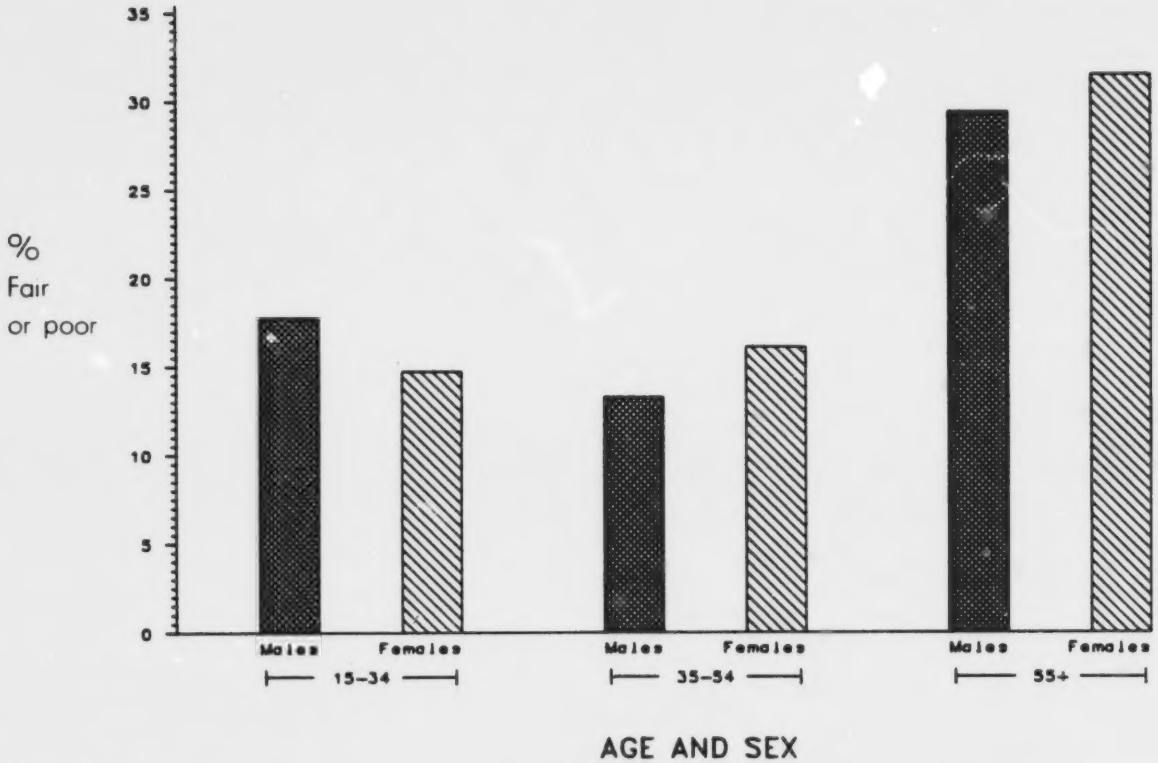


Table 7

Self-Assessed Health Status
by Age and Sex

Age and Sex	Percent Fair or Poor
All Ages (N=981)	
Both Sexes	19
Males	19
Females	20
Age 15-34 (N=448)	
Both Sexes	16
Males	18
Females	15
Age 35-54 (N=283)	
Both Sexes	15
Males	13
Females	16
Age 55 and Older (N=250)	
Both Sexes	31*
Males	29
Females	32

*$p < .01$ An asterisk in the row All Ages: Females refers to sex differences. An asterisk in the row Age 55 and Older: Both Sexes refers to age differences. Sex differences within a specific age group are asterisked in the Females column for that age group.

2. Selected Health Problems

We turn now to specific health problems and behaviors reported by the TCHS sample. We are still dealing with self-reported health status, but in most cases TCHS respondents say that these are problems which have been diagnosed by a physician.

We asked the members of the sample whether they were suffering from any of the following conditions: diabetes, heart trouble, asthma, hay fever or other allergies, emphysema or chronic bronchitis, a persistent cough or shortness of breath, migraine headaches, serious back problems or cancer. Nearly half the sample, 47 percent, said they suffer from one or more of these conditions. If we exclude hay fever and other allergies, the single most prevalent condition on the list, one-third of TCHS respondents report one or more of the selected health problems (see Figure 2). In 1979, the Canada Health Survey asked a nation-wide sample of Canadians whether they suffered from health problems of any kind: slightly more than half of Canadians reported at least one health problem. Considering that we asked about a short, selected list of problems, the results are roughly comparable.

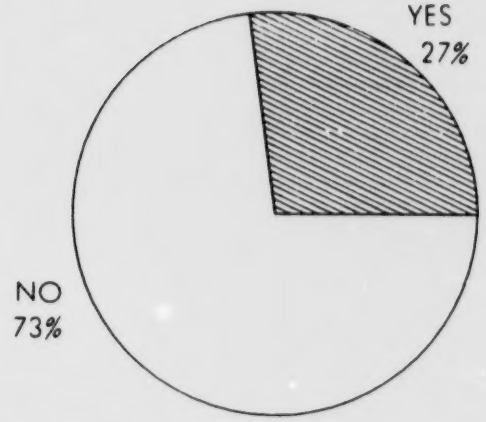
The prevalence of these health problems in the TCHS sample is detailed in Tables 8 and 9. For both sexes and all age groups, they are ranked in order of prevalence as follows:

Hay fever and other allergies	27 %
Serious back problems	12 %
Persistent cough or shortness of breath	9 %
Asthma	7 %
Migraine headaches	6 %
Heart trouble	5 %
Emphysema or chronic bronchitis	3.5%
Cancer	3 %
Diabetes	2 %

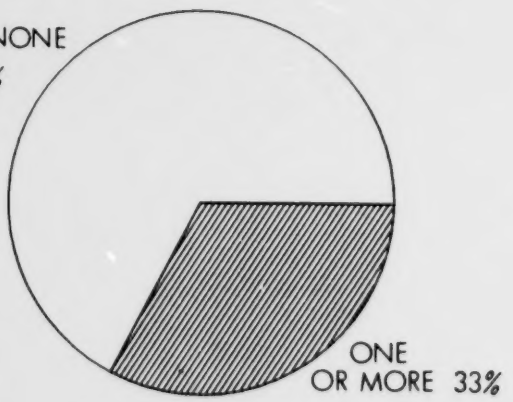
The prevalence of these selected health problems in the TCHS sample is generally comparable with the findings of the Canada Health Survey, except for respiratory problems: our survey suggests these problems may be more prevalent in Toronto. More than one-third of TCHS respondents (35%) report at least one respiratory problem, if we include hay fever and other allergies (Table 9). Fourteen percent of TCHS respondents say they suffer from asthma, emphysema, chronic bronchitis, or from a persistent cough or shortness of breath (Figure 2). Some respondents may have reported asthma and a persistent cough, of course, but they are counted just once in the total.

FIGURE 2

Selected Health Problems
reported by the TCHS sample

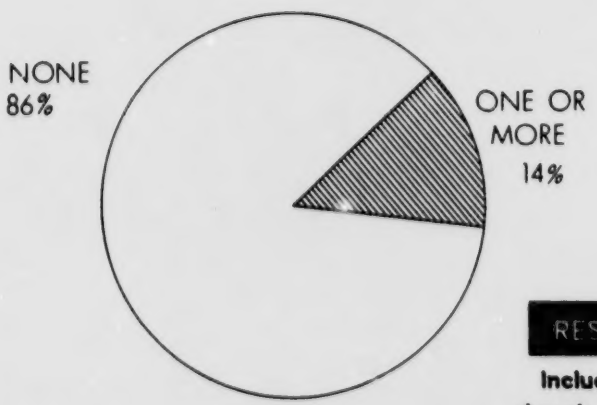


HAYFEVER OR OTHER ALLERGIES



ONE OR MORE SELECTED PROBLEMS

Includes diabetes, heart problems, migraine headaches, serious back problems cancer, respiratory problems (see below)



RESPIRATORY PROBLEMS

Includes Asthma, emphysema, chronic bronchitis, persistent cough or shortness of breath

Table 8: Prevalance of Selected Health Problems, Percent+ By Age And Sex

Type of Health Problem	All Ages			Age 15-34			Age 35-54			Age 55 and Older		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
Diabetes	2	2	2	.5	0	1	3	4	2	4*	3.5	5
Heart Trouble	5	4	6	1	1	1	2.5	1	4	15*	15	15
Asthma	7	7	7	7	8	6	8	5	10	7	8	7
Hay Fever, Other Allergies	27	24	29	32	29	35	28	25	31	16*	12	18
Emphysema, Chronic Bronchitis	3.5	3	4	2.5	3	2	3	2	5	6	5	6
Persistent Cough, Shortness of Breath	9	8	9	6.5	7	6	7	5	10	14*	16	13
Migraine Headaches	6	4	8*	7	5	9	7	5	9	4	0	7*
Serious Back problems	12	11	13	6.5	6	7	14	13	15	21*	19	22
Cancer	3	1	5*	1	0	2*	3	0	6*	6*	4	7
N++	981	410	571	448	197	251	283	128	155	250	85	165
Percent of Total Sample	100	42	58	46	20	26	29	13	16	25	9	17

+ Percentages may not add to 100 because of rounding.
++ Denominator for percentages in each column.
* $p < .01$ An asterisk in the column All Ages: Females refers to sex differences. An asterisk in the column Age 55 and Older: both sexes refers to age differences. Sex differences within a specific age group are asterisked in the Females column for the age group.

Table 9: Number of Health Problems, Percent+ By Age and Sex

Number of Health Problems**	All Ages			Age 15-34			Age 35-54			Age 55 and Older		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
One or more health problems	47	43	51	44	41	47	44	37	50	56*	58	55
One or more health problems--excluding hay fever and other allegeries	33	30	35	24	22	26	31	25	37	50*	54	47
One or more respiratory problems	35	33	37	37	37	38	35	30	39	32	29	33
One or more respiratory problems--excluding hay fever & other allergies	14	15	13	11	14	9	13	10	16	19*	22	18
N++	981	410	571	448	197	251	283	128	155	250	85	165
Percent of Total Sample	100	42	58	46	20	26	29	13	16	25	9	17

+ Percentages may not add to 100 because of rounding.
++ Denominator for percentages in each column.
* $p < .01$ An asterisk in the column All Ages: Females refers to sex differences. An asterisk in the column Age 55 and Older: both sexes refers to age differences. Sex differences within a specific age group are asterisked in the Females column for the age group.
** Refers to problems listed in Table 8.

Table 10 compares the prevalence of the problems we selected in Toronto with the findings of the Canada Health Survey. On all three categories of respiratory problems for which there are comparable data, TCHS prevalence rates are higher. The Health of Canadians did not report undiagnosed respiratory problems such as persistent cough or shortness of breath, nor can we determine how many CHS respondents reported a combination of ailments. So our ability to make comparisons is somewhat limited. However, just four percent of TCHS respondents report a persistent cough or shortness of breath without also reporting one of the specified respiratory problems. Leaving aside this category for the moment, we see that 27 percent of TCHS respondents report hay fever or other allergies, compared with 10 percent in the Canada Health Survey. Seasonality may account for part of the difference: TCHS data was collected at the time of year when hay fever is at its peak. According to our survey, 7 percent of Torontonians suffer from asthma and 3.5 percent suffer from emphysema or chronic bronchitis (there is some overlap here: 1 percent of TCHS respondents report both conditions). The Canada Health Survey found that 2 percent of Canadians suffer from asthma, and 3 percent from emphysema or chronic bronchitis (overlap is not reported). Even if we assume that none of the CHS sample reported asthma as well as emphysema or chronic bronchitis, it seems that chronic obstructive lung disease may be more prevalent in Toronto than across the country as a whole. We are dealing with self-reported health conditions here, of course. But 97 percent of TCHS respondents reporting asthma, emphysema or chronic bronchitis said the condition had been diagnosed. Among TCHS respondents reporting hay fever or other allergies, 87 percent said they had been diagnosed.

Some confirmation of TCHS findings is provided by the recently completed study of health status in the Junction Triangle. The Study compared health status in the heavily-industrialized Junction Triangle neighborhood with neighboring areas and with a control area that is not industrialized but similar to the Triangle in socio-demographic composition. None of the areas is truly representative of the City as a whole, therefore, but there is no reason to expect unusually high rates of respiratory disease in the control area. The study found that asthma rates in the control area were similar to the Canada Health Survey. However rates for hay fever and other allergies in the control area were double CHS rates, as were the rates for emphysema or chronic bronchitis (see Table 10).

Table 10

A Comparison of the Prevalence of Selected Health Problems in the TCHS Sample (1983), the Canada Health Survey (1979), and the Junction Triangle Study Control Area (1983), Age 15 and Over

Health Problem	TCHS %	CHS+ %	JT Control Area++ %
Hay Fever and Other Allergies	27	10	20
Serious Back Problems	12	*	*
Persistent Cough or Shortness of Breath	9	*	*
Asthma	7	2	2
Migraine Headache	6	6	10
Heart Trouble	5	5	6
Emphysema or Chronic Bronchitis	3.5	3	6
Cancer	3	*	*
Diabetes	2	2	3

+ The Health of Canadians, table 57, age 15 and older.
++ A Study of the Health Status of Residents of the Junction Triangle, Toronto, table 8.2

There are few significant differences in the health problems reported by men and women and by the three age groups. In Table 8 we see that young and middle-aged women report significantly more cases of cancer than men in those age groups, but there is no significant difference between older men and women. And significantly more older women than older men suffer from migraines. There are significant increases with age in the prevalence of diabetes, heart troubles, serious back problems, and cancer; respondents aged 55 and older are much more likely to report a persistent cough or shortness of breath. On the other hand, hay fever or other allergies are reported less frequently with age.

In Table 9, these trends are summarized. In general, men and the young are less likely to report that they suffer from one or more of the selected problems. Sex differences within age groups are significant only among the middle-aged: in general, more middle-aged women than men report problems. The picture for respiratory problems is more complex. There are no differences between men and women, overall; but age makes a significant difference if we exclude hay fever and other allergies, especially among respondents aged 55 and older. Excluding hay fever and other allergies, again, we see in Figure 3 that respiratory problems are more likely to occur in young men, middle-aged women and older men than in the opposite sex in these age groups.

3. Psychological Well-Being

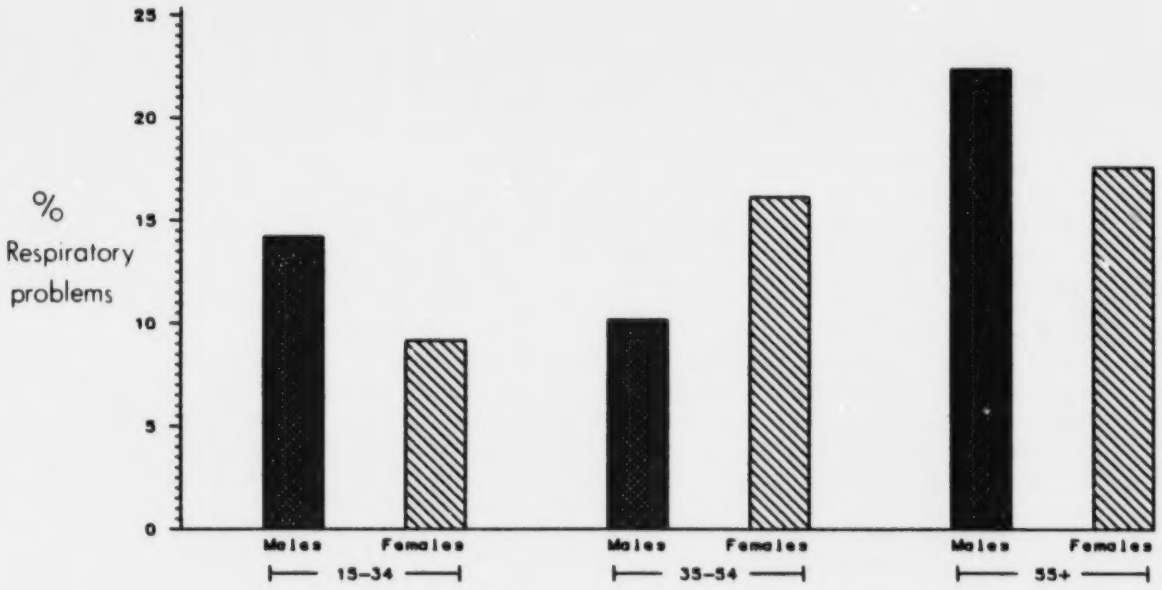
The Brief Psychological Well-Being Scale (BPWB) was employed to measure the emotional well-being of TCHS respondents. We noted earlier that "high" and "low" scores on the scale were determined with reference to the median score: respondents who scored above the median are categorized as "high", meaning they report a more positive sense of well-being than the other half of the sample. The BPWB scale is a useful measure of the relative well-being of subgroups within the TCHS sample, and therefore, we expect that it will help to identify cultural and socio-economic differences in the health status of Toronto residents. The scale is not particularly useful for comparing the emotional well-being of Torontonians with other populations, however.

Results of the BPWB scale should not be interpreted as indicating diagnosable mental disorders. Brief psychological screening scales are intended to measure nonspecific psychological distress ... "something like physical temperature: when it is elevated, you know something is wrong but you do not know what specific thing is wrong until you learn more about the context" (20,37).

FIGURE 3

Reported Respiratory Problems* and Age

Among Males and Females in the TCHS Sample



* Asthma, emphysema, chronic bronchitis, persistant cough or shortness of breath

There do not appear to be any significant differences in the emotional well-being of Torontonians by sex or by age, according to this measure (see Table 11). However, additional analyses which examine the extremes of this scale may elicit new information. Figure 4 indicates that there is little difference between men and women in the three age groups. None of these differences is statistically significant, so that strictly speaking, sex and age appear to have no bearing on the psychological well-being of the TCHS sample.

4. Health Behaviours

Certain health behaviors also can be used as indicators of health status. We asked the TCHS sample about consultations with physicians, hospitalization, drug use, and activity limitation. Most of these health behaviors are related to the health problems discussed above, of course. Table 12 indicates whether the relationship between the health problems and health behavior is significant and in the expected direction. But these health behaviors may indicate other health problems, as well; they are not simply a function of the specific problems that we focus upon in this study. Accordingly, we will treat health behavior, as we have measured it, as a general indicator of health status.

a. Health Care Utilization

According to the survey, approximately 20 percent of all Torontonians had consulted a physician in the two weeks preceeding our interviews, in person or by telephone (see Figure 5). The majority of consultations were personal visits. Seven percent of TCHS respondents had consulted a physician more than once during the reference period. During the 12-month period preceding their interviews, 11 percent of sample members had stayed overnight in a hospital; an additional ten percent had received out-patient services from a hospital (see Figure 5). Wherever possible, we asked respondents to differentiate consultation with a physician in his or her office from contacts with physicians in out-patient clinics.

Women were more likely than men to have been hospitalized overnight, and somewhat more likely to have consulted a physician (see Table 13). Older respondents were more likely to have consulted a physician, followed by the young and then the middle-aged. There are few differences among the sexes within the three age groups: it is primarily in the youngest age group that women use these health services more than men (no doubt because these are the child-bearing years); there is a slight difference in overnight hospitalization between middle-aged men and women; there are no significant differences between older men and women.

Table 11

Psychological Well-Being
by Age and Sex

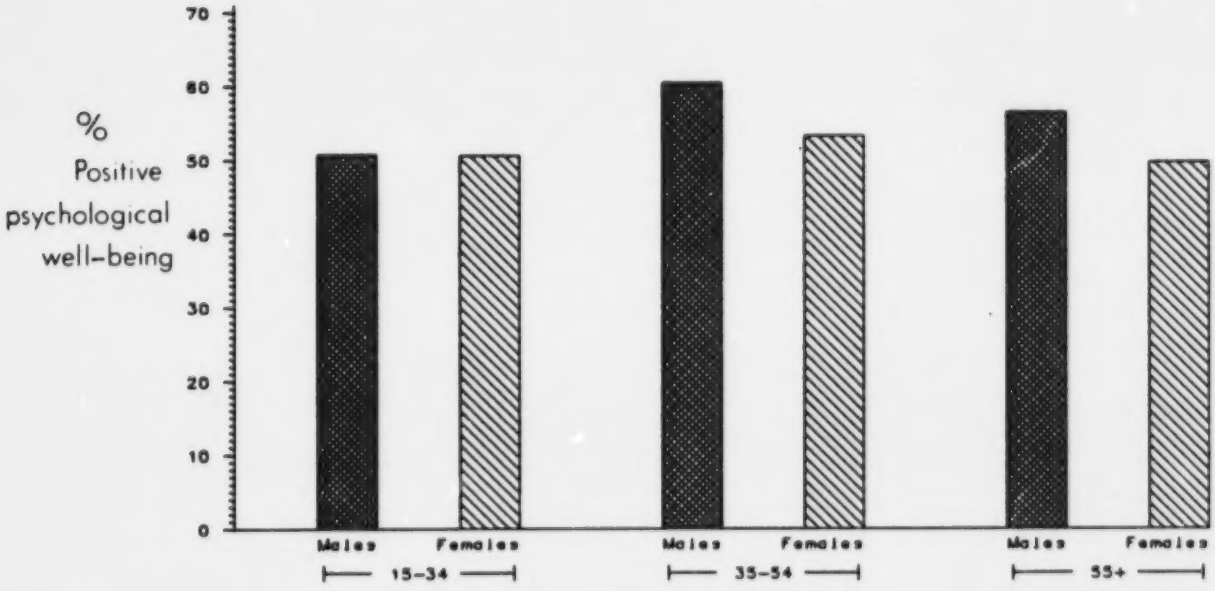
Age and Sex	Percent Positive +
All Ages (N=968)	
Both Sexes	53
Males	55
Females	51
Age 15-34 (N=446)	
Both Sexes	51
Males	51
Females	51
Age 35-54 (N=276)	
Both Sexes	57
Males	60
Females	53
Age 55 and Older (N=246)	
Both Sexes	52
Males	56
Females	50

+ Score of 9 to 12 on Brief Psychological Well-Being Scale (Mean TCHS score = 8.43). Age and sex differences are not statistically significant.

FIGURE 4

Psychological Well-Being* and Age

Among Males and Females in the TCHS Sample



* Greater than 8 on the Brief Psychological Well-Being Scale

Table 12

Health Problems and Health Behaviors (p*)

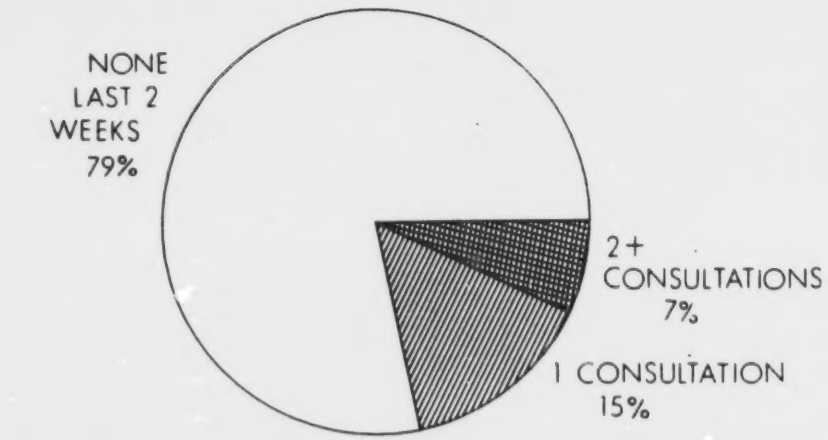
	HEALTH BEHAVIOR:				
	Physician Consultation	Hospital In-Patient	Hospital Out-Patient	Drug Use	Activity Limitation
HEALTH PROBLEM:					
Diabetes	.16	.84	.13	.0001+	.003+
Heart Problems	.02+	.01+	.14+	.0001+	.0001+
Asthma	.07+	.74	.96	.25+	.04+
Hay Fever, Other Allergies	.003+	.98	.67	.002+	.53+
Emphysema, Chronic Bronchitis	.0003+	.003+	.37+	.03+	.0001+
Persistent Cough, Shortness of Breath	.004+	.0005+	.04-	.0002+	.0001+
Migraine Headaches	.0007+	.003+	.33-	.06+	.01+
Serious Back Problem	.0001+	.0006+	.02+	.0001+	.0001+
Cancer	.05+	.0004+	.18+	.19+	.03+
Diagnosed Hypertensive	.002+	.62	.82	.0001+	.0001+
Psychological Well-Being	.003+	.07+	.74	.07+	.0001+

* Probability that the relationship between health problem and health behavior is due to chance, based on Chi Square statistic.
+/- Direction of the relationship, if linear.

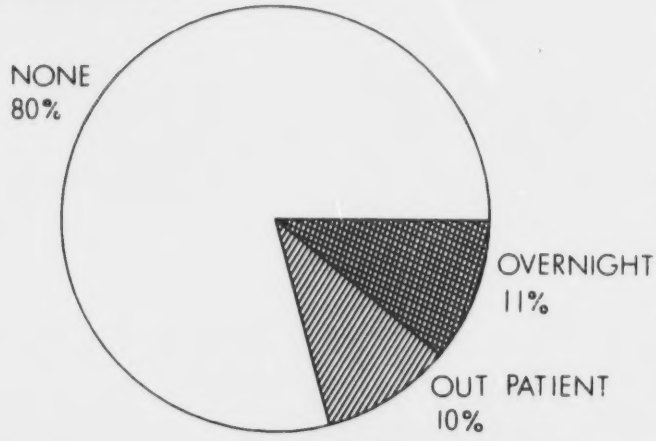
FIGURE 5

Selected Health Behaviors

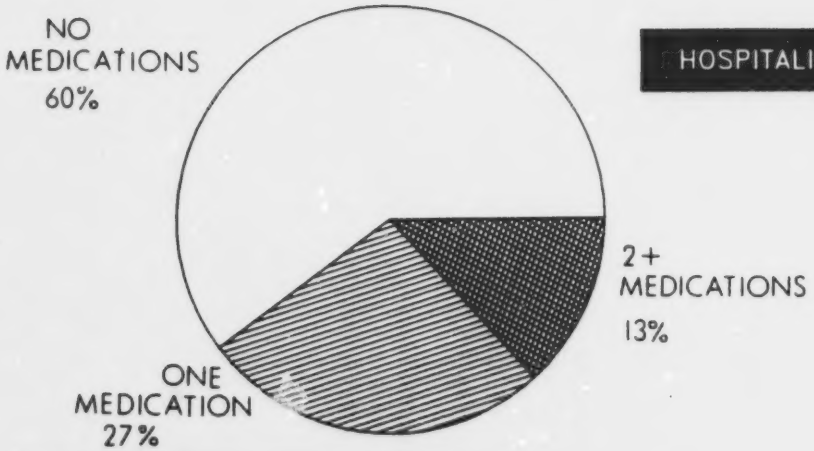
reported by the TCHS sample



CONSULTATIONS WITH A PHYSICIAN (2 WEEK PERIOD)



HOSPITALIZATION (12 MONTH PERIOD)



DRUG USE (2 DAY PERIOD)

Table 13: Selected Health Behaviors, Percent+ by Age and Sex

Health Behavior	All Ages			Age 15-34			Age 35-54			Age 55 and Older		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
Consultations (2 wk)												
None	78	83	75	78	87	71	82	84	79	75	71	78
One	15	12	17	13	7	17	13	19	15	20	25	18
Two or More	7	6	8	10	7	12*	6	6	6	4*	5	4
Hospitalization (12 months)												
Overnight	11	7	13*	12	7	16*	8	4	11	13	15	12
Out Patient	10	10	9	11	13	10	10	9	11	7	7	7
Drug Use (2 days)												
None	60	70	53	66	78	56	66	69	64	44	52	39
One	27	22	29	26	19	31	25	26	25	29	26	31
Two or More	13	8	17*	8	4	13*	9	5	11	27*	22	30
Activity Limitation (N=980)												
None	72	80	67	82	87	78	76	80	73	50	62	44
Some	18	12	21	12	7	16	15	13	17	31	24	35
Major Activity Limited	10	8	12*	6	6	6	9	7	10	19*	14	21
N++	981	410	571	448	197	251	283	128	155	250	85	165
Percent of Total Sample	100	42	58	46	20	26	29	13	16	25	9	17

\+ Percentages may not add to 100 because of rounding.
++ Denominator for percentages in each column (less missing values on dependent variable).
* $p < .01$ With the exception of hospitalization, p values refer to all categories of the dependent variable, e.g., consultations by age. An asterisk in the column All Ages: Females refers to sex differences. An asterisk in the column Age 55 and Older: both sexes refers to age differences. Sex differences within a specific age group are asterisked in the Females column for the age group.

These findings are generally comparable with the results of the Canada Health Survey. In the two-week period prior to their interview, 22 percent of Canadians said they had consulted a health professional. Most of these consultations were with physicians. The Health of Canadians also gives detailed age and sex breakdowns for consultations with physicians over a 12-month period: men and women are equally likely to have consulted a physician just once or twice in a year, but women are more likely to have seen a doctor three times or more. The relationship between age and M.D. consultations varies with the frequency of consultations. One or two consultations per year are most likely to be reported by younger respondents, with little difference between men and women; men are increasingly likely with age to report three to nine consultations per year, while women from child-bearing years onward show little change with age; women increasingly report 10 or more consultations per year as they age, whereas men begin consulting physicians this frequently only in late middle-age. These details help explicate TCHS findings for the two-week reference period. Our snapshot of physician consultations captures the effect of these trends at any given point in time.

b. Drug Use

The use of medicines, pills and ointments is another health behavior that can indicate health status. We were also concerned with the possibility of abuse of these substances, that is, over use or inappropriate use. The term "drug" is used to refer to all of these substances, whether they are prescribed or not; however, we did not record information about the use of vitamins and minerals, although many respondents volunteered it. In this section, we describe the extent of drug use in the TCHS sample, and the types of drugs in use.

Two out of every five Torontonians had taken drugs in the two days prior to their interviews, according to the survey results. Figure 5 indicates that 13 percent of TCHS respondents had taken more than one kind of drug. Without regard to age, women were more likely to report using drugs than men; and without regard to sex, older respondents were much more likely to use drugs than the young or middle-aged. The proportion of respondents taking two or more drugs increases significantly over the age of 55. Differences between men and women within the three age groups are significant only for the youngest group, where women are much more likely than men to use drugs (see Table 13). These findings are roughly comparable with the results of the Canada Health Survey, considering that vitamins and minerals are included in CHS totals. Overall, 48 percent of Canadians reported taking drugs (in the broader sense of the term which CHS researchers employed) in the

two days prior to their interviews. Differences in drug use between men and women and by age are also similar.

Drug use among young women in the TCHS sample is probably higher than the survey results would indicate. Just eight percent of the women in the sample reported that they take birth control pills, compared with 22 percent of women between the ages of 15 and 44 in the Canada Health Survey. The CHS figure was similar to estimated sales of the pill at the time of that survey, so there is little doubt that we have underestimated the use of birth control pills in Toronto. CHS researchers noted that women were much more likely to report that they used birth control pills in the self-administered questionnaire than they were during the interview. It appears that women are reluctant to discuss oral contraceptives with an interviewer, even when prompted. We did not probe for information about this particular drug. More important than women's reticence to discuss birth control, however, is the possibility that the pill may not be regarded as a drug or medicine. Just as some TCHS respondents thought about their vitamins, when we asked about "medicines, pills, or ointments", some women thought about their oral contraceptive; others did not. There is some evidence in the Canada Health Survey that many women do not regard the pill as a drug, with potentially harmful effects: despite the known risk of heart attack and stroke when cigarette smoking and the pill are combined, the smoking habits of Canadian women apparently are not influenced by whether or not they use birth control pills (26).

One in five drugs is taken without a prescription, according to TCHS respondents. Antihistamines are the most common medication taken without a prescription: 65 percent of antihistamines are not prescribed. They are followed by cough preparations (56 percent not prescribed), analgesics (53 percent), skin preparations (27 percent), anti-infectives (14 percent), gastro-intestinal preparations (13 percent), and central nervous system drugs other than analgesics (6 percent not prescribed).

Figure 6 indicates the proportion of the total of each kind of drug taken, and the amount of each drug which is not prescribed. As a proportion of all the drugs taken, the categories are ranked as follows:

Analgesics (pain relievers)	25%
Cardiovascular	20%
Other Central Nervous System	8%
Birth Control	7%
Other Hormones	8%
Anti-Infectives (including anti-biotics)	7%
Homeostatic and Autonomic Nervous System	7%
Antihistamines	4%
Gastro-Intestinal Preparations	4%
Other (cough, skin preparations, etc.)	6%
Unclassified	4%

The shaded areas in Figure 6, which indicate drugs not prescribed, comprise 20 percent of all the drugs taken. Thirteen percent of all the drugs taken are unprescribed analgesics.

c. Activity Limitation

Our final indication of health status is activity limitation. More than one in four Toronto residents experiences a limitation in activity because of health. Ten percent say their "major" activity is limited in some way because of their health: this group consists of respondents who work either outside or inside of their home and are limited in the kind or amount of work they can do (including respondents who were unemployed, laid off, or on strike at the time of their interview); retirees who were forced to retire because of ill-health, and respondents who are unable to work at all because of their health. We were unable to code students for major activity limitation. The category of "some" activity limitation, which includes 18 percent of the TCHS sample, is based on a detailed set of questions about limitation in activities which most people would find routine--walking, using stairs, etc.; it does not include respondents who said they experienced any limitation in their major activity for the previous 12 months.

There are significant differences in activity limitation by age and sex (see Figure 7). Women are much more likely than men to report activity limitation, and there are marked increases in activity limitation with age. The categories of "some" and "major" activity limitation have been combined in Figure 7. In general, "some" limitation comprises two-thirds of each bar, so that the overall trend shown in the graph is the same for the two categories of activity limitation. Table 13 shows age and sex differences for the two categories.

FIGURE 6

Drug Use
reported by the TCHS sample

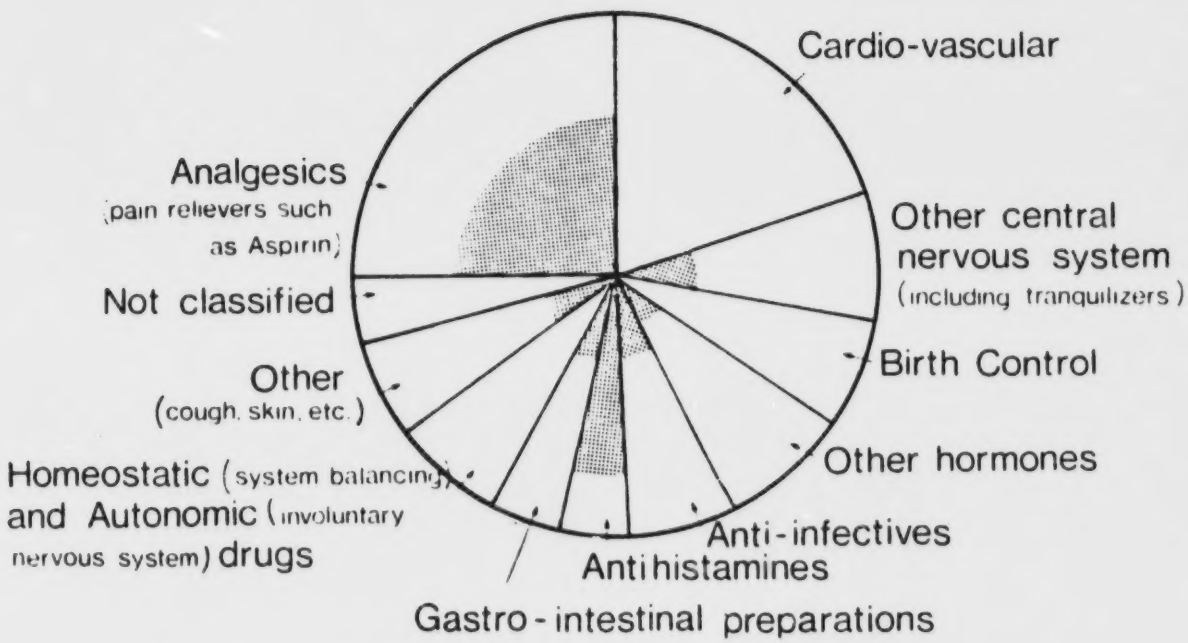
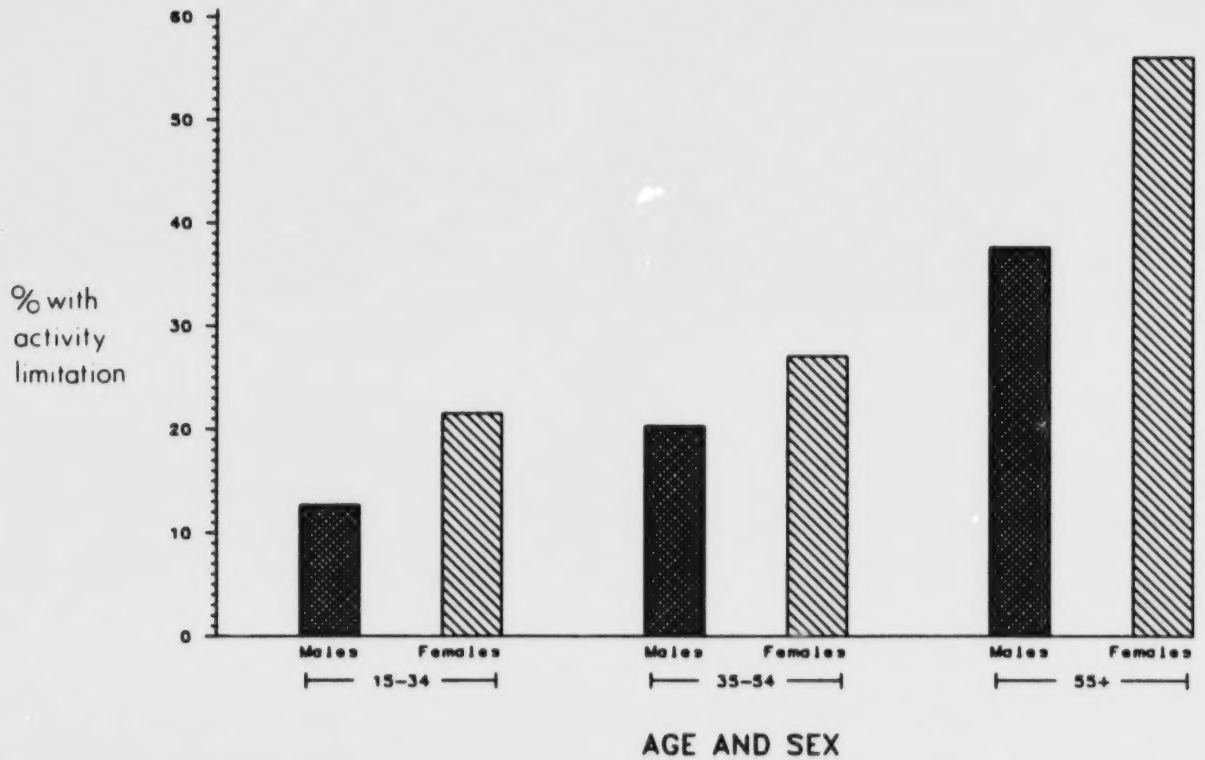


FIGURE 7

Activity Limitation* and Age

Among Males and Females in the TCHS Sample



*some and major

According to our survey, Toronto residents may be somewhat less likely than Canadians as a whole to experience major activity limitations. The Canada Health Survey found that 12 percent of Canadians were limited in their ability to perform the major activity in their life, with no significant difference between men and women. A Montreal study found prevalence rates for all categories of activity limitation similar to the CHS results (38). It is likely that we have under-estimated disability in the City of Toronto, however, because we have no data on major activity limitation among full-time students over the age of 15 (approximately 10 percent of the population). In addition, the difference between TCHS and CHS findings is actually confined to men: 8 percent of Toronto men report major activity limitation, compared with 11 percent of Canadian men. In both the Toronto and nation-wide surveys, 12 percent of women reported major activity limitation.

5. Behavioral Risk Factors

After having asked the members of the TCHS sample to assess their own health status, we gave them an opportunity to reflect on the reasons why their health is excellent, good, fair or poor, compared with other persons their age. Without prompting, 50 percent of our respondents said that lifestyle was a major factor influencing their health status. Less than a third referred to health problems, and the remaining responses attributed health status to age, heredity, and "luck." The references to lifestyle were usually quite specific: smoking, alcohol use, physical exercise, nutrition, getting enough rest and work-related stress seem to be widely recognized by Torontonians as factors which can affect their health. In the survey, we investigated four "risk" factors. Smoking, alcohol use, hypertension and physical exercise in the TCHS sample will be described in this section (see Table 14). Many of the leading causes of premature death in Toronto are related to these risk factors: cardiovascular disease, lung cancer, and cirrhosis of the liver are particular problems in the City (12).

a. Alcohol Consumption

According to the survey, 85 percent of Toronto residents drink alcohol; 76 percent--three out of every four respondents, had taken at least one drink per week, on average, in the previous year. Thirty percent had taken at least one drink per day, on average. Torontonians are somewhat more likely than Canadians, as a whole, to drink alcohol. The Canada Health Survey reported that 16 percent of Canadians had never taken a drink or had abstained in the 12 months prior to their interview; 15 percent of our sample are abstainers. Fifteen percent of Canadians are occasional drinkers (that is they drink less than once a month);

eight percent of Torontonians are occasional drinkers. Current drinkers, those who drink alcohol more than once a month, total 65 percent across Canada; in Toronto, this figure increases to 76 percent. To some extent, this difference may be attenuated by the fact that 16 percent of respondents in the Canada Health Survey did not respond to questions about alcohol use, and these respondents were distributed proportionately across the response categories. In addition, four percent of the CHS sample could not be categorized. Less than one percent of the TCHS sample refused to tell us about their alcohol consumption, and these respondents have been deleted from the analysis.

Although we employed the criteria of the Centers for Disease Control (CDC) in Atlanta to characterize the amount of alcohol consumed we are also able to compare "heavy" drinking in Toronto with the results of the Canada Health Survey. Nine percent of the TCHS sample say they are heavy or chronic drinkers (see Figure 8), compared with 12 percent in the CHS nation-wide sample. Following the CDC and CHS criteria, we consider the consumption of 14 or more drinks per week to be heavy drinking. It appears that Torontonians may be somewhat more likely than Canadians as a whole to drink alcohol, but they are somewhat less likely to be heavy drinkers.

Heavy drinking, as we have measured it, is not necessarily a hazardous level of alcohol consumption. The health risks associated with drinking are known to vary with the volume and frequency of alcohol consumption, weight, drinking history, and a variety of other individual characteristics. Few survey respondents report the volume and frequency of drinks per week that are unequivocably hazardous to health. When we look at alcohol consumption in a given population, however, it appears that higher levels of alcohol consumption overall, tend to indicate higher levels of alcoholism (26:26,27). Accordingly, we follow the CDC and CHS practice of regarding "heavy" drinking as an indicator of potential risk.

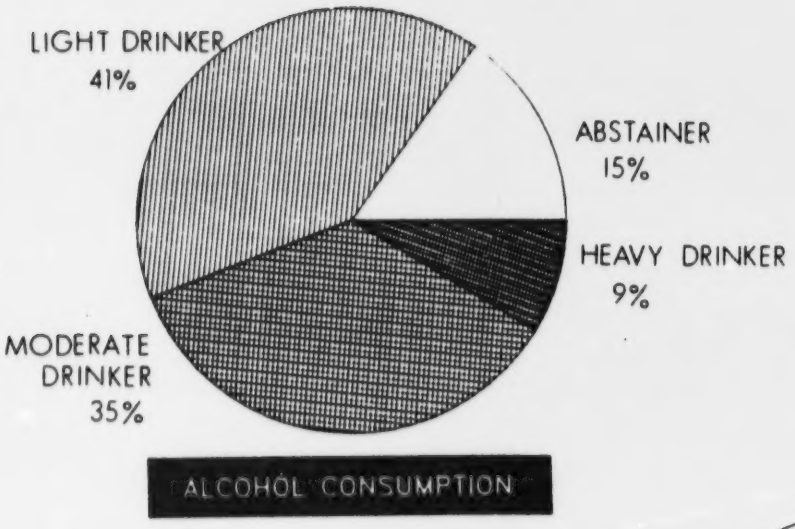
Table 14: Behavioral Risk Factors, Percent+ By Age and Sex

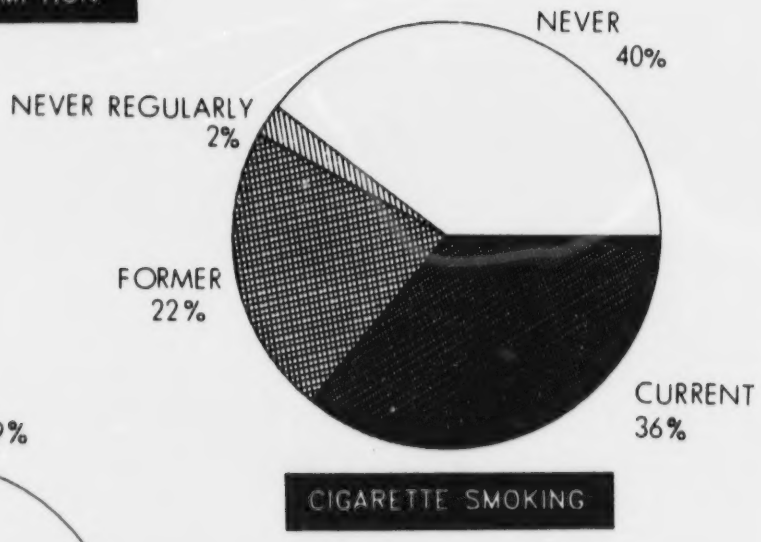
Risk Factor	All Ages			Age 15-34			Age 35-54			Age 55 and Older		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
Alcohol Consumption (N=976)												
Heavy Drinker	9	14	5*	7	13	3*	12	17	8	7*	12	5
Moderate Drinker	35	42	31	37	43	32	39	43	35	29	36	25
Light Drinker	41	32	47	43	34	51	38	29	45	39	33	42
Abstainer	15	12	17*	13	10	14*	11	11	12	25*	19	27
Cigarette Smoking (N=978)												
Current Smoker	36	41	32	37	42	32	38	46	32	31	30	32
Former Smoker	22	25	20	17	13	19	21	22	20	33	55	22
Never Smoked Regularly	2	3	2	2	3	1	4	2	5	2	2	2
Never Smoked	40	32	45*	45	42	47	37	30	43	33*	12	44*
Physical Exercise (N=981)												
Sedentary	7	7	7	5	5	5	10	9	10	9	9	8
Somewhat Active	11	9	13	8	7	9	11	10	12	18	14	21
Moderately Active	33	28	36	19	15	22	35	34	35	55	52	56
Active	49	55	44*	69	74	65	45	47	43	18*	25	15
Hypertension												
Diagnosed	15	13	17	7	8	7	12	13	11	33*	25	37
Medication Prescribed (N=149)	69	56	77*	20	6	35*	68	76	56	90*	81	93
Medication Compliance (N=104)	93	100	90	100	100	100	91	100	80	93	100	91
Uncontrolled (N=104)	31	32	30	29	0	33	30	31	30	31	35	30
N++	981	410	571	448	197	251	283	128	155	250	85	165
Percent of Total Sample	100	42	58	46	20	26	29	13	16	25	9	17

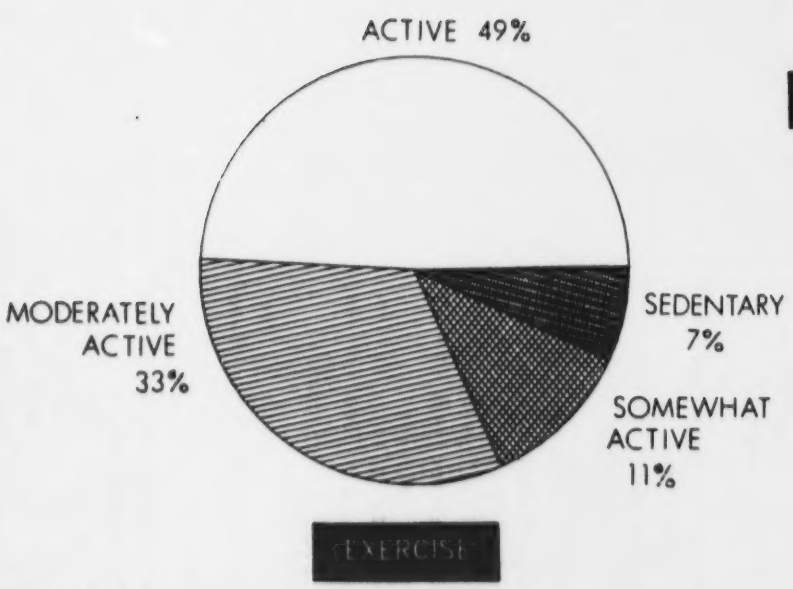
+ Percentages may not add to 100 because of rounding.
++ Denominator for percentages in each column (less missing values on dependent variable).
* $p < .01$ With the exception of hypertension, p values refer to all categories of the dependent variable, e.g., cigarette smoking by age. An asterisk in the column All Ages: Females refers to sex differences. An asterisk in the column Age 55 and Older: both sexes refers to age differences. Sex differences within a specific age group are asterisked in the Females column for the age group.

FIGURE 8

Risk Factors
reported by the TCHS sample







There are significant differences in alcohol consumption in Toronto between men and women, and among the three age groups (see Figure 9 and Table 14). Fourteen percent of men are heavy drinkers, compared with five percent of women. Men are also more likely than women to be moderate drinkers, while women are more likely to be light drinkers or to abstain. Middle-aged respondents are more likely to be heavy drinkers than the young or the old; the young and middle-aged both are more likely than the oldest group to be moderate drinkers; light drinking is equally likely across the three age groups; and the old are more likely than the young or middle-aged to be abstainers. The differences between men and women are constant across all three age groups, but they are significant only for the young. These results are at odds with the Canada Health Survey's findings that heavy drinkers are more likely to be young, and that young women and young men are more alike in their alcohol consumption patterns than middle-aged or older men and women. To the extent that heavy drinking has an adverse affect on health, the middle-aged men in our sample are most at risk, and middle-aged women are more like their male age-mates than the women of any other group.

b. Cigarette Smoking

Only 36 percent of all Torontonians currently smoke tobacco cigarettes, according to Figure 8, and another one in five is a former smoker. Forty percent have never smoked.

Torontonians are not significantly different from the rest of Canada in their smoking behavior. The Canada Health Survey reported that 39 percent of the nation-wide sample were current smokers, 23 percent were former smokers, and 31 percent had never smoked. (The smoking status of 6 percent of CHS respondents was not determined.) Previous studies of the smoking habits of Canadians (26:48) had reported that between 34 and 36 percent of Canadians were currently smoking. These surveys appear to have under-reported cigarette consumption, however, when compared to tobacco sales data for the same period. The initial smoking habits surveys were administered personally by an interviewer, while the Canada Health Survey used a self-administered questionnaire. The latter, like our telephone survey, may have elicited more accurate reporting of smoking behavior because it provides more anonymity. In addition, the early smoking habits surveys permitted proxy responses, and parents may have under-estimated the cigarette consumption of their teenage children. TCHS findings support the Canada Health Survey's conclusion that smoking is more prevalent than health professionals had previously believed.

FIGURE 9

Heavy Alcohol Use and Age

Among Males and Females in the TCHS Sample

There are significant differences in smoking status between men and women and among the age groups when all four categories of smoking status are considered (see table 14), but much of the difference seems to be due to the changing behavior of women. Women are less likely than men to be current or former smokers; and the young are less likely than middle-aged or older respondents to be current smokers. But among the youngest age group, there is very little difference between men and women--although young women are more likely to be former smokers and young men are more likely to be current smokers. Young women also are somewhat more likely never to have smoked. There is more difference between women and men in the middle-aged group: more men are current smokers and more women have never smoked. And the largest difference between men and women occurs in the oldest age group. More than twice as many older men than women are former smokers (55 and 22 percent respectively); more than three times as many women than men have never smoked. Interestingly, there are nearly equal proportions of current smokers among older men and women (Figure 10).

Ten percent of our sample are heavy smokers, slightly less than the 12.5 percent reported by the Canada Health Survey. But contrary to the nation-wide survey, we find that men are not significantly more likely than women to be heavy smokers. There are significant differences among the three age groups, however: like the Canada Health Survey, we find more heavy smoking in the middle age group. Middle-aged men and older men are somewhat more likely than their female age-mates to be heavy smokers, but these differences are not statistically significant.

c. Physical Exercise

One in two Toronto residents is physically active, according to the survey (Figure 8). Seven percent of the TCHS sample is sedentary; that is, they do not engage in any active physical exercise, very little light physical recreation, and the level of daily effort required in their work and around the house is light.

We found no difference between men and women in the sedentary group. Middle-aged and older respondents are twice as likely to be sedentary as the young; but Figure 11 indicates that men and women are equally sedentary in both age groups.

FIGURE 10

Current Cigarette Smokers and Age
Among Males and Females in the TCHS Sample

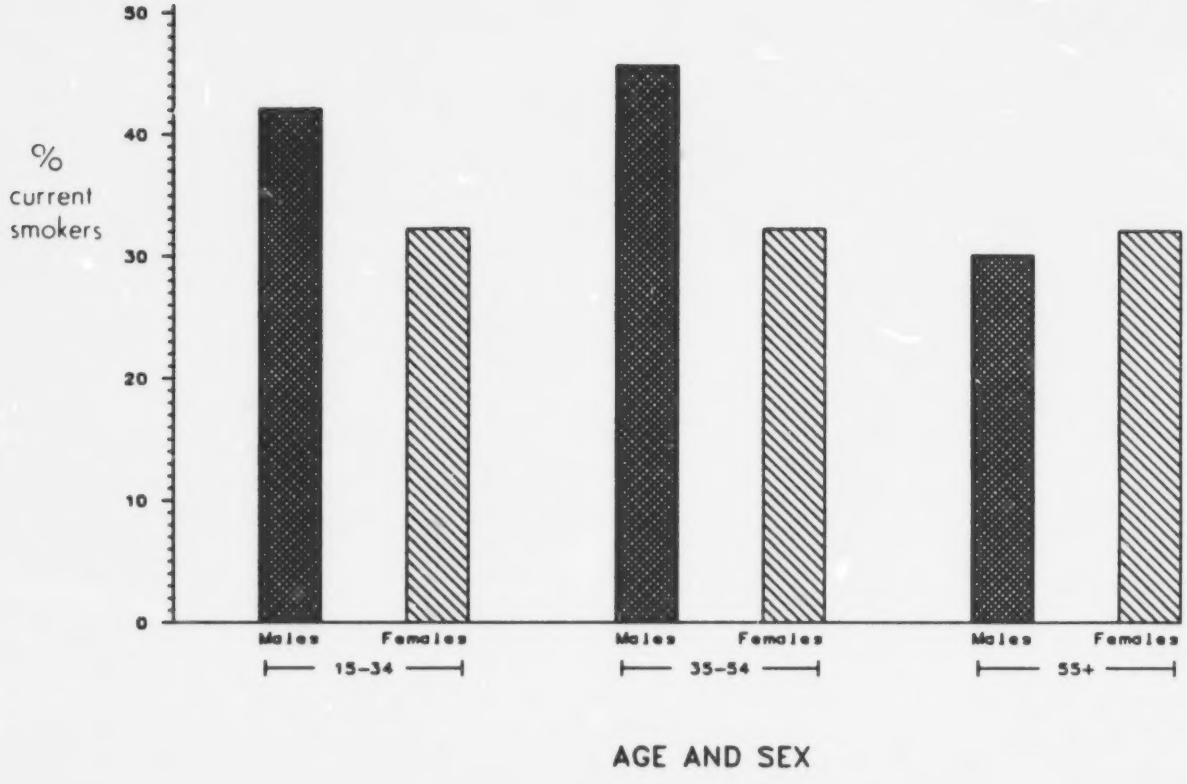
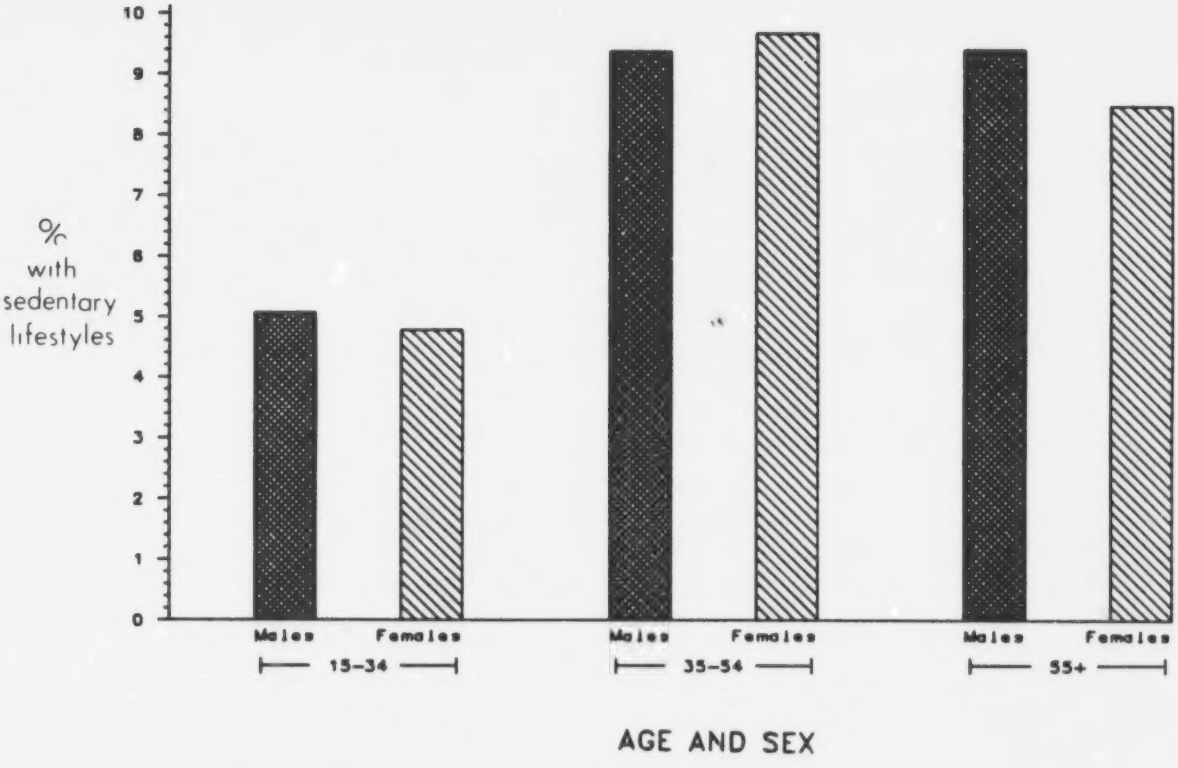


FIGURE 11

Sedentary Lifestyle and Age

Among Males and Females in the TCHS Sample



Among the active, there is a significant difference between men and women. In all three age groups, men are more likely to be active than women, although the difference is very slight among the middle-aged. The level of physical exercise reaches 70 percent in the youngest age group, declining to 45 percent among the middle-aged and 18 percent in the oldest group. Table 14 indicates the proportion of somewhat active and moderately active respondents among men and women and in the three age groups. Considering all four exercise categories, there are significant differences in the level of physical activity by sex and by age.

We will not attempt to compare our findings with either the Canada Health Survey or the Canada Fitness Survey. Unlike these surveys, which report the level of physical activity during leisure time (The Canada Health Survey also takes into consideration household chores), we have opted to use a more comprehensive summary measure. This index of physical exercise, developed for the CDC behavioral risk factor survey, takes into account "active" physical exercise ("exercise which makes you sweat or makes your heart beat fast"), light physical recreation, and the level of daily activity involved in household chores and in work outside the home. Points are assigned for each of these types of activity.

Among respondents who reported that they engage in "active" physical exercise, calisthenics was the most popular form of activity (26 percent), followed by running, jogging or fast walking (24 percent), swimming (14 percent), bicycling (13 percent), racquet sports (9 percent), team sports (7 percent), and miscellaneous others (6 percent). Fifty-eight percent of the TCHS sample said they engage in active physical exercise. To assign exercise "points" for this activity, we weighted the frequency and duration of their exercise.

Some form of light physical recreation was reported by 69 percent of TCHS respondents. For most of them, this meant that at least once a week they engaged in light physical activity by gardening, bowling, dancing, golfing, etc. Exercise points were assigned for the frequency of this activity.

The final component of our physical exercise index is the level of physical effort involved in work or other daily activities. Here we asked respondents to categorize their effort as light (office work, driving, sitting), moderate (housework, carpentry, walking), or heavy (such as pushing or carrying heavy objects). Exercise points were assigned to each category. Light effort was reported by 41 percent of the sample, moderate effort by 48 percent, and heavy daily activity or effort by 11 percent. Heavy work was sufficient in itself to place respondents in the moderately active

category of physical exercise, but they did not receive enough points for heavy work alone to make the "active" group.

This summary measure of physical exercise thus has the advantage of requiring a mix of activities for the "active" rating. Heavy work and some light physical recreation are required; or moderate effort at work, some light physical recreation, and some active physical exercise. The exception is the ardent jogger: it is possible to accumulate enough points to be considered "active" by spending four or more hours a week in active physical exercise. Ten percent of our sample--17 percent of the physically active group, are "active" in this sense.

It is possible that some of our respondents have reported their expectations for themselves, rather than actual physical activity. Canadians have become increasingly fitness conscious in the last decade: while much of that consciousness has led to changed behavior, it may also have led to a climate of opinion in which TCHS respondents may have exaggerated their level of physical activity. We have no evidence about this for our sample. Our only basis for comparison is the reported levels of cigarette smoking and alcohol consumption in the sample: these are similar to the results reported in other studies, and the same pressures to conform to society's expectations would probably be operating here--if, indeed, that is a factor. On the other hand, it is almost certain that we exaggerated the level of physical activity of Torontonians by interviewing in the summer and fall, the times of year when most Canadians are at the peak of their annual activity cycle.

d. Hypertension

Fifteen percent of the TCHS sample report that they have been told by a health professional at some time in their life that they had high blood pressure (see Table 14). Of these respondents, 69 percent have had medication prescribed for the condition and 72 percent of those for whom it was prescribed were taking the medication at the time of the interview. Most respondents who had stopped taking prescribed hypertensive medication (79 percent) were acting on the advice of their physician. Altogether, 93 percent of hypertensives who had medication prescribed were complying with their physician's advice. Among respondents who have had hypertensive medication prescribed, 58 percent said their blood pressure is now normal, 31 percent said their blood pressure was still high, and 10 percent were not sure. Only 4 percent of respondents who had stopped taking medication said their blood pressure was still high, and all of them had stopped taking their medication on a physician's advice.

Figure 12 indicates the proportion of the total sample in each of these categories, showing differences between men and women. Women are somewhat more likely than men to have been diagnosed as hypertensive, although the difference is not significant. The Canada Health Survey also found that women were more likely than men to report that they had been diagnosed as hypertensive. However, the Canada Health Survey included a home visit by a nurse, who took blood pressure readings. When those results were compared with respondents' report of whether they had been diagnosed as hypertensive, the Canada Health Survey researchers found that two-thirds of Canadians with elevated blood pressure were unaware of the fact. Men were more likely than women to have had high blood pressure measured by the nurse, and to have been unaware that their blood pressure was high.

The prevalence of hypertension in TCHS sample is higher than it was in the nation-wide CHS sample (17 percent among women, compared with 9 percent nation-wide, and 13 percent among men, compared with 6 percent). But the Canada Health Survey was conducted five years ago, and the fact that 79 percent of TCHS respondents had had their blood pressure checked in the previous year suggests that undiagnosed hypertension may be less of a problem now. However, men are still less likely than women to have had their blood pressure checked.

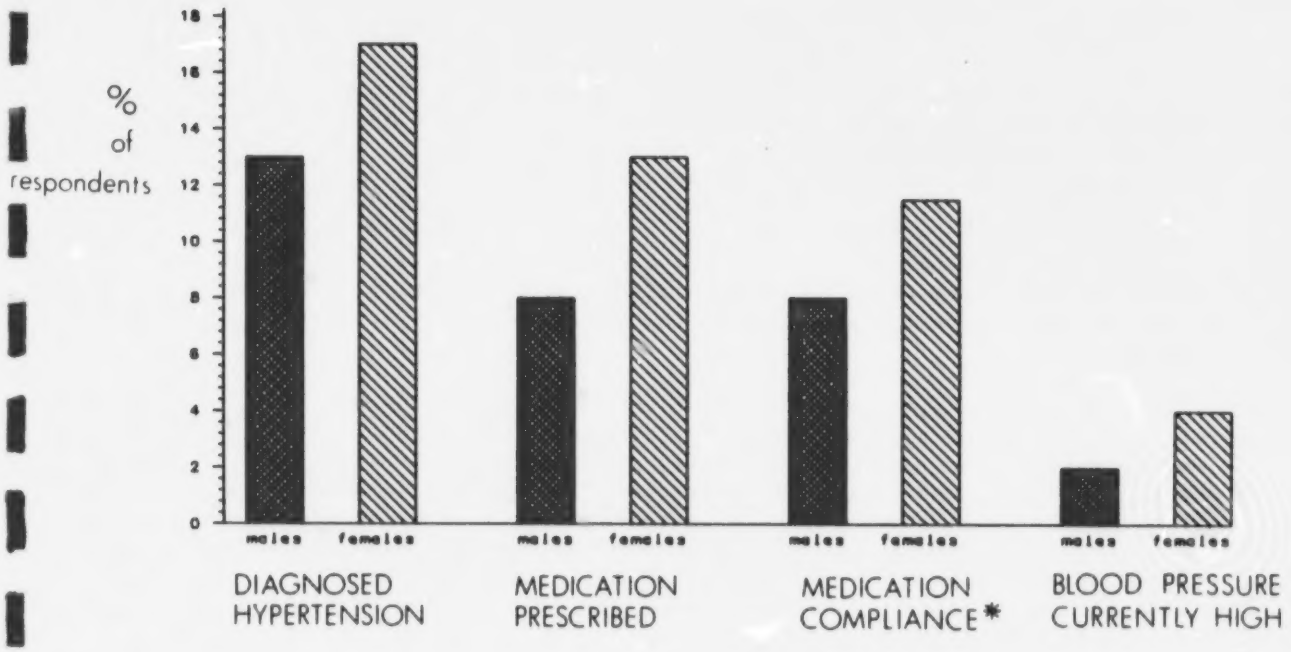
Women in the TCHS sample who are diagnosed hypertensives are more likely than men to have had medication prescribed, and they are more likely to be taking it. However, all of the respondents who had stopped taking hypertensive medication on their own initiative are women.

As we might expect, age is a significant factor in the diagnosis of hypertension; it is also a significant factor in its treatment (Table 14). There is a clear increase with age in the prevalence of diagnosed hypertension and in its treatment with medication. Among respondents 55 years of age or older, one third have been diagnosed with hypertension; 90 percent of the diagnosed hypertensives have had medication prescribed and all but one person in 15 complies; and ten percent of this age group still has high blood pressure. There are few significant differences between men and women in the three age groups. Young women are more likely than young men to have had hypertensive medication prescribed. And older women are somewhat more likely than older men to have been diagnosed as hypertensive and to have uncontrolled hypertension.

FIGURE 12

Hypertension and Hypertensive Medication Compliance

Among Males and Females in the TCHS Sample



* Taking medication, or stopped taking medication on physician's advice

e. Risk Factors and Health Status

We will briefly look at the relationship between risk factors and health status. It is not possible in a cross-sectional study such as this to find causal evidence of the relationship between risk factors and ill health. The illnesses that are known to be related to heavy alcohol use, smoking, uncontrolled hypertension and a sedentary lifestyle typically do not appear until one has engaged in the "risky" behavior for a long time. In addition, a cross-sectional study cannot discern whether a disease is the result or the cause of a particular factor. We know from clinical evidence that many Toronto residents are risking their health by drinking too much, smoking, not exercising and through uncontrolled hypertension: it has never been our intention to confirm the fact with TCHS data. Nonetheless, there is bound to be some interest in the current health status of respondents who engage in these risk behaviors. Therefore, we have examined the odds of developing the disease or health status indicator when the risk factor is present compared to the odds when the risk factor is absent.

Table 15 shows these odds ratios for the risk factors heavy drinking, current smoking, sedentary behavior, and uncontrolled hypertension. An odds ratio which is greater than 1.0 means that the risk of disease (e.g., heart problems) is greater when the risk factor (e.g. uncontrolled hypertension) is present compared to when it is absent. On the other hand, an odds ratio which is less than 1.0 means that the risk of disease is lower when the risk factor is present than when it is absent (in other words, the factor is protective).

Table 15

Odds Ratios Comparing
Risk Factors and Health Status

	RISK FACTOR:			
	Heavy Drinker	Current Smoker	Sedentary	Uncontrolled Hypertension
HEALTH STATUS INDICATOR:				
Self-Assessment	1.06	1.55**	1.47	3.88**
Diabetes	0.24	0.93	0.92	5.97**
Heart Problems	0.52	1.22	2.32	10.48**
Asthma	1.02	0.46**	0.62	2.03
Hay Fever, Other Allergies	1.63*	0.86	0.86	1.09
Emphysema, Chronic Bronchitis	0.80	1.84	0.97	1.30
Persistent Cough, Shortness of Breath	2.31**	3.21**	3.22**	1.23
Migraine Headaches	0.98	1.13	0.95	.68
Serious Back Problem	0.99	1.24	0.69	2.17
Cancer	1.39	0.83	0.21	1.54
Psychological Well-Being	1.07	1.17	0.90	2.34*
Consultation with Physician	0.58	0.80**	1.26	4.30**
Hospitalization (in-patient)	1.91*	1.14	0.94	1.65
Hospitalization (out-patient)	0.85	1.57*	0.89	0.73
Drug Use	1.12	0.92	1.19	34.34**
Activity Limitation	0.92	1.20**	1.29	6.01**

* $p < 0.05$
** $p < 0.01$

It must be stressed that this analysis is preliminary and also problematic when the study design is cross-sectional in nature. However, the following points are worth noting for future analysis.

1) Current smokers and those with uncontrolled hypertension were shown to be likelier to assess their health as fair or poor compared to non-smokers or those with controlled or no hypertension.

2) The odds of having heart problems appeared to be much higher for those with uncontrolled hypertension compared to those without it.

3) The odds of having a persistent cough and being short of breath are greater if one is a heavy drinker, current smoker, or is sedentary.

4) Those with uncontrolled hypertension are more likely to consult a physician, use drugs, and be limited in their activity than those with controlled or no hypertension.

5) Current smokers are less likely to have asthma than non-smokers. (In this case, the smoking status is likely a result of the disease.)

Table 15 does not take into account the effect of age and gender on health status: we know that age and sex in themselves (or rather, the biological and sociological processes which they reflect) may account for much of the difference in health status that we are reporting here. Preliminary analysis of the relationship between risk behavior and health status, taking age and sex differences into account, suggests that the relationships with significant differences reported in Table 15 hold up for some age groups, and for men or women (sometimes both). Space does not permit us to undertake that kind of detailed analysis here. It must also be remembered that a cross-sectional study cannot assess a causal relationship.

6. Preventive Health Practices

We asked the TCHS sample about several practices that are known to prevent health problems. Specifically, we investigated the use of seatbelts while driving or riding in a car, annual blood pressure examinations, proper dental care and certain practices on the part of women -- Pap tests and breast examinations. These practices are recognized by health professionals as effective measures in the prevention of injuries from motor vehicle accidents, hypertension, oral health problems and cancer. We wanted to find out whether these practices are widespread in the City of Toronto, and whether there are particular groups at risk of ill health because they do not practice one or more of these preventive measures. The results are summarized in Figures 13 and 14.

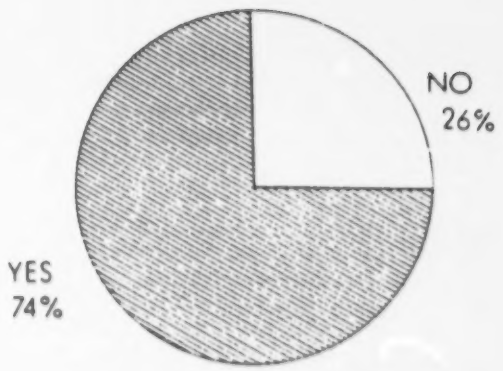
According to the survey results, three in four Torontonions use a seatbelt "always" or "nearly always" when they ride in a car. Women are somewhat more likely than men in all three age groups to use their seatbelt, and there is a slight increase with age in seatbelt usage (Table 16). The differences are not significant, but the result of these trends is that 79 percent of men and 81 percent of women who are 55 years of age or older say they wear their seatbelts. Sixty percent of our sample say they "always" use a seatbelt; 8 percent say they never use it.

These results are a considerable improvement over the Canada Health Survey's finding in 1979 that just 60 percent of Canadians in provinces with mandatory seatbelt legislation use their seatbelt "all or most" of the time. (Where seatbelt use was not mandatory, just 16 percent of Canadians said they used it). More than 25 percent of CHS respondents failed to respond to the question about seatbelt usage, however, because of the way it was administered. So the CHS data are useful primarily in documenting the effectiveness of seatbelt legislation. To the extent that the CHS estimate of 60 percent seatbelt usage is reliable, it is possible that there has been some increase in seatbealt usage in the intervening five years. CHS researchers also found that women were somewhat more likely than men to use seatbelts, but there were no differences with age.

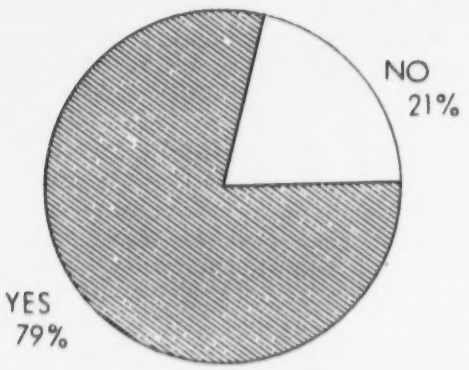
Four out of five Torontonions report having had their blood pressure checked within the 12 months previous to their interview. There are significant differences by sex and age in this practice: women are more likely than men to have had an annual blood pressure examination in the young and middle-aged groups; the oldest age group are more likely than the young and middle-aged to have had an annual examination. There is a gap of 20 percent between young men, the group least likely to have had their blood pressure checked within the year, and older women, the group most likely to follow this practice (see Table 16).

FIGURE 13

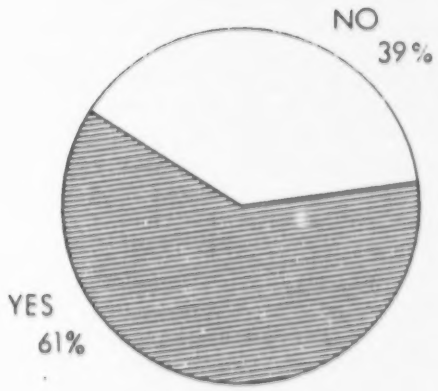
Selected Preventive Health Practices
reported by the TCHS sample



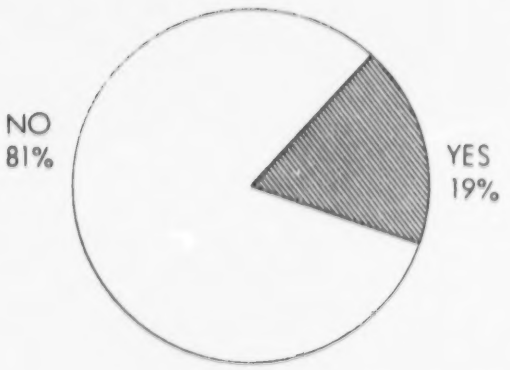
USE SEATBELT ALWAYS OR NEARLY ALWAYS



ANNUAL BLOOD PRESSURE CHECK-UP



VISIT DENTIST ANNUALLY

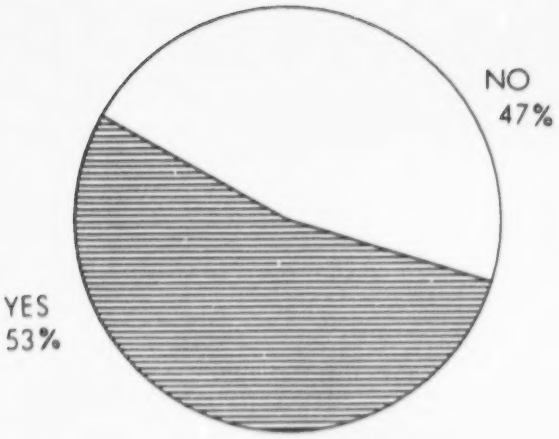


USE DENTAL FLOSS OR WATER PIC DAILY

FIGURE 14

Preventive Behaviors

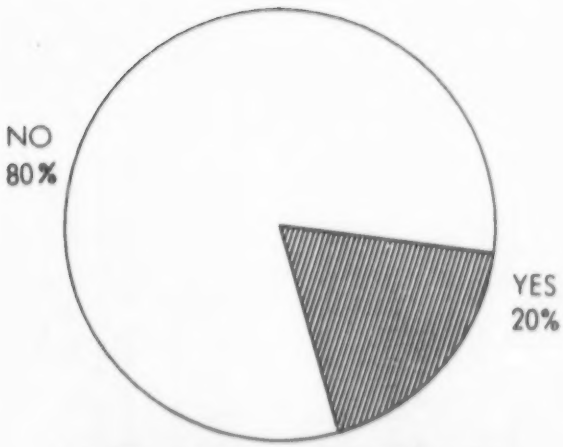
Among Females in the TCHS Sample



ANNUAL PAP TEST

ANNUAL BREAST EXAMINATION

(BY HEALTH PROFESSIONAL)



BREAST SELF EXAMINATION

Table 16: Preventive Health Practices, Percent+ By Age And Sex

Health Practice	All Ages			Age 15-34			Age 35-54			Age 55 and Older		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
Use Seatbelt (N=977)	74	71	77	72	69	75	73	70	75	80	79	81
Annual Blood Pressure Checkup (N=976)	79	72	84*	76	68	82*	76	69	82*	88*	86	88
Visited Dentist within last year	61	53	67*	67	60	72	63	47	75*	49*	47	50
Use Dental Floss or Water Pick Daily	19	13	22*	21	14	26*	20	13	26*	12*	12	13
Paptest Within the last year (N=569)	--	--	53	--	--	66	--	--	55	--	--	32*
Annual Breast Exam by Physician (N=568)	--	--	62	--	--	67	--	--	68	--	--	49*
Regular Breast Self-Examination	--	--	20	--	--	19	--	--	17	--	--	26
N++	981	410	571	448	197	251	283	128	155	250	85	165
Per Cent of Total Sample	100	42	58	46	20	26	29	13	16	25	9	17

+ Percentages may not add to 100 because of rounding.
++ Denominator for percentages in each column (less missing values on dependent variable).
* $p < .01$ An asterisk in the column All Ages: Females refers to sex differences. An asterisk in the column Age 55 and Older: both sexes refers to age differences. Sex differences within a specific age group are asterisked in the Females column for the age group.

We asked about two preventive dental practices: visits to a dentist for prevention and treatment of oral health problems; and the use of dental floss or a water pick to prevent gum disease. Women observed both practices more than men, and the old are much less likely than the young or middle aged to practice preventive dental care (Table 16). To some extent, this may be due to the use of dentures among the aged. The differences between middle-aged men and women are most significant. Less than half of the men in this age group had seen a dentist in the previous year, compared with three quarters of the women. Toronto residents are more likely than other Canadians to have seen a dentist in the course of a year: 61 percent, compared with 50 percent of CHS respondents. Perhaps most important, just one in five Torontonions uses dental floss or a water pick on a daily basis. Young and middle-aged women are the groups most likely to practice this preventive habit, but still the figure is just one in four.

The remaining three practices shown in Table 16 are preventive measures for early detection of cancer of the cervix and breast. Early diagnosis improves significantly the chance of surviving these cancers. Fifty-three percent of Toronto women reported having a Pap smear test within the last year, according to our survey. There is a significant difference by age: two-thirds of young women had had the test, and just one-third of older women. The Canada-wide survey found that 21 percent of Canadian women had never had a Pap smear test, compared with 12 percent of Toronto women. CHS researchers also found that older women were much less likely to have had the test than younger women. We can speculate that education about this preventive practice may be having more impact on the young, and the practice will become more prevalent as these younger cohorts of women make their way through the age structure. It is also possible that such practices are more prevalent in large urban areas.

Younger and middle-aged women also are significantly more likely to have had their breasts examined by a physician within the previous year. Overall, less than two-thirds of the women in the TCHS sample report this practice (see Table 16). We also asked women whether they practice breast self-examination (BSE) regularly.

According to medical guidelines, a BSE should be performed at the same stage of each menstrual cycle (or in the case of post-menstrual women, every month on a regular basis.) Twenty per cent of Toronto women usually perform a proper breast self-examination, according to the survey (see Table 16). There is no significant difference by age; in fact, older women are somewhat more likely to perform a proper BSE. This is likely due to the fact that post-menstrual women (defined for the purpose of this study as women aged 55 and older) are not required to perform the

examination at any particular time. CHS researchers reported that 21 per cent of Canadian women practice the BSE on a monthly basis, but they did not attempt to determine whether the BSE was being performed at the proper time. The comparable TCHS figure is 33 per cent. Our results suggest that more women are now practicing the BSE, but many of them may not be practicing it according to medical guidelines.

IV PLANNING IMPLICATIONS

The TCHS marks a milestone in the development of the Department's information system. For the first time, we have information on specific practices and conditions of Toronto citizens and these data have important implications for health planning.

One outcome of the Community Health Survey will be its use for planning program interventions with identifiable groups of City residents. Until recently, the Health Department has had morbidity data only at the aggregated level, that is, for the City as a whole. Even when it was possible to examine the information at the census tract level (for areas of 2,500 to 8,000 people) we could not link a range of characteristics of individuals (such as socio-demographic features) with their health status. This survey therefore expands the Department's profile of the health of citizens of the City of Toronto. It becomes part of an integrated data base that will enable us to target groups of citizens who suffer ill health and identify in which areas of the City they reside.

For example, we may determine from the future analysis of our survey data that 15-24 year old men in 'XYZ' ethnic group in the City of Toronto drink or smoke excessively compared to other 15-24 year old men. From our census data we will know in which Health Areas, and even census tracts, these young men would most likely reside and, thus, where health promotion efforts would most likely be effective. We can then efficiently target a specific health promotion program aimed at reducing the health risk factor found in these areas of the city in 'XYZ' language and in a form that is socially and culturally geared to this specific group. Furthermore, by repeating relevant portions of the survey we would then be able to evaluate changes in the specific risk group behavior after the program had been implemented. Being able to pinpoint, in this manner, where people with particular health problems or needs reside, and to later evaluate programs, holds enormous promise for the Department and others in the cost-effectiveness of service provision.

Another consequence of obtaining these self-reports is that we now have information on specific behaviors (smoking, drinking, etc.) that relate directly to health outcomes. It is well known that lifestyle practices affect health and with this information we can begin to identify groups of people who may be at risk for problems in the future, even though they may now be healthy. Furthermore, it will be possible to describe people who have multiple risk factors and may need special interventions.

Up to this point, the Department has had data on births, causes of death, and reasons for hospitalization for the City, which has restricted our view to major medical and life events rather than the prevalence of certain diseases or conditions in the population (e.g. cancer, asthma, etc.). Apart from knowing why people die and/or go to the hospital, an important focus of public health is on the quality of life people lead. We know that life expectancy has increased generally; the next issue is how well people are living those extra years. In other words, what proportion of people are not able to operate at their full potential and what factors appear to affect this? For this reason, many questions on the survey centered on disabilities, self-assessed health and psychological adjustment, all of which relate to healthfulness of life.

In addition to the value of the information to flesh out our current picture of health in the City, the Community Health Survey will provide a useful tool for measuring progress in the Department's efforts to deal with the identified problems. Since our intention is to repeat the survey every few years, we will be able to monitor changes in behaviors as well as outcomes, thus beginning to evaluate the effectiveness of our programs over time in meeting the Department's stated goals.

Also, because many of the questions in the survey were derived from similar studies in the United States and Canada, it will be possible to compare our findings on health status of Torontonians with people in other areas of the country and elsewhere.

The Survey and Departmental Priorities

In 1983, the Health Department designated thirteen priorities to which it will be allocating a major portion of staff time and other resources. Several of the stated goals are concerned with reducing morbidity and mortality from specific diseases, namely, heart disease, substance abuse, suicide and occupation and environment-related health problems. One purpose of the Community Health Survey was to determine the prevalence of these problems and of behaviors that make people susceptible to them. This section will examine TCHS data relative to the Departmental goals. In other words, what information has the Toronto Community Health

Survey provided that will inform program planning to meet these goals?

In regard to the health status of Torontonians, the survey has revealed a number of positive points. For instance, the majority of people in the City appear to be physically active, do not smoke, drink moderately and report no limitations in activity due to their health. On the other hand, there are identifiable groups with health problems or unhealthy lifestyles who could benefit from appropriate interventions. For example, 19 percent of the sample reported their health status was only fair or poor. Extrapolating to the City population as a whole and allowing for sampling error, this suggests that between 80,000 and 105,000 people over the age of 15 feel their health could be better. As well, 47 percent of respondents identified one or more specific health problems, including allergies. This means that as many as 218,000 to 254,000 city residents may have some health impediment. Twenty-eight percent of the sample reported experiencing activity limitation. In other words, the survey suggests that between 123,000 and 158,000 citizens may be unable to perform some of the tasks of daily life due to a health constraint. Therefore, need exists for a number of public health interventions in the community. Several areas where the Department has already begun initiatives are listed below and data from the survey are noted under each of these priorities.

Goal: REDUCE PREVENTABLE DEATHS AND ILLNESS
DUE TO SUBSTANCE ABUSE

Substance abuse, in this context, refers to a range of behaviors - smoking, excessive alcohol use, the non-medical use of drugs, and the unsafe combination of drugs. Already, the Toronto Community Health Survey has indicated some of the groups among whom these risks are identified. Men in general smoke more than women, although they are comparable in the youngest and middle aged groups. Men at all ages report higher levels of alcohol consumption.

Information was obtained on some aspects of the non-medical use of drugs: those used without doctors' orders and those used in combination. A substantial proportion (40 percent) of respondents had taken some medication in the two days prior to their interview and over one in 10 had taken more than one drug during that period. Also, more than half of the analgesics and anti-infectives were being used without a doctor's recommendation. This raises the question of how appropriately people are prescribing for themselves, particularly older people and/or those using several types of medications.

Turning to the City population as a whole, we can estimate the following:

- 163,000 to 199,000 Torontonians aged 15 and over are current smokers:
  84,000 to 113,000 are males and
  71,000 to 97,000 are females

- 34,000 to 57,000 Torontonians are heavy drinkers:
  24,000 to 45,000 are males and
  7,800 to 20,000 are females

- 52,000 to 79,000 Torontonians may be using drugs in combination:
  43,000 to 64,000 males and
  62,000 to 89,000 females

- 44,000 to 67,000 Torontonians are taking one drug without a doctor's supervision and 2,000 to 9,500 are consuming two or more.

Goal: REDUCE MORTALITY AND MORBIDITY DUE TO PREMATURE HEART DISEASE

Heart disease is still the leading cause of death in Toronto. We know from the Toronto Community Health Survey that 5 percent of the sample had heart trouble, 15 percent had diagnosed hypertension and 21 percent of those with high blood pressure were not yet responding to treatment. This suggests that 17,000 to 34,000 Torontonians have heart problems; 62,000 to 89,000 have diagnosed hypertension and, at a minimum, 13,000 to 22,000 people suffer from uncontrolled hypertension.

In addition to those whose heart-related disease is recognized, there is special interest in people who may be prevented from developing this ailment. Although a variety of factors determine whether someone will succumb to heart disease, lifestyle behavior is strongly influential. Therefore, the proportion of the sample who are sedentary, drink heavily, smoke regularly and are overweight will be the subjects of special interest for public health interventions. For example, from the survey we estimate that 26,000 to 45,000 Torontonians do not engage in any regular physical activity, that 8,000 to 16,000 men between the ages of 35 and 54 are self-reported heavy drinkers and that 73,000 to 96,000 young people between 15 and 34 years of age are current smokers. 45,000 to 18,000 persons of all ages report being diabetic and some of these people will have diabetes mellitus which is a risk factor for heart disease.

Goal: REDUCTION OF OCCUPATIONAL HEALTH AND SAFETY HAZARDS

Several questions were asked about respondents' occupation and type of work and any perceived risks associated with their job. Twenty-three percent of those currently working, laid off or on strike volunteered information on a physical, chemical or biological risk experienced at their place of work. Four percent of all respondents cited two risks and one percent cited three or more. Overall, this suggests that 66,000 to 85,000 citizens perceive at least one health risk at their site of employment. Although this finding is not explored in this text, it will be covered in subsequent reports.

Future analysis will explore links among reported health problems, socio-demographic characteristics, employment status and occupation in this sample. Some of these findings will be presented in a forthcoming report to the Local Board of Health.

Goal: REDUCTION OF HEALTH HAZARDS IN THE ENVIRONMENT

One question was included on a topic of widespread concern at the time of the survey --- water quality. This question related strictly to respondents' perception of hazards related to Toronto's drinking water. Only a small proportion of the sample (seven percent) or 26,000 to 45,000 households use bottled or specially-treated water. Three percent do so because they do not like the taste and four percent because they are concerned about chemicals.

One identified health problem that may be related to environmental problems is respiratory ailments. From the survey, we estimate that 160,000 to 191,000 Torontonians suffer from one or more respiratory problems. Specifically, the indications are that 120,721 to 150,901 have hay fever and other allergies, 35,000 to 57,800 have persistent cough or shortness of breath, 26,000 to 45,200 have asthma and 10,000 to 27,000 have emphysema or chronic bronchitis. Two other conditions - migraine headaches, which we estimate afflict 21,000 to 40,000 residents, and cancer, which may affect another 9,000 to 22,000 - may also be induced by the environment. Further analysis will explore the connections between prevalence of these infirmities and occupation, place of residence, cigarette smoking and length of exposure to the City environment.

Goal: DEVELOP A COMPREHENSIVE DATA BASE ON HEALTH STATUS

The Toronto Community Health Survey is a rich source of information that will be thoroughly analysed through future studies. As an aid to program planning, a number of important questions will be answered, for example,

What specific groups in the City are at risk for health problems?

What is the prevalence of disabilities among residents?

What are the socio-cultural differences in health status?

What segments of the population have positive lifestyles?

What is the profile of those using the health care system most frequently?

In conjunction with other available data on mortality, life expectancy, hospital separations, etc. it will be possible to build a health expectancy index for Toronto, similar to that developed by Wilkins and Adams (51). Such an index will blend our knowledge of various components of health status into a single, comprehensive measure, accounting for quality as well as quantity of life.

Of course, as additional analysis becomes available, the Toronto Community Health Survey will become a valuable tool in specific program planning (e.g. designing services for certain cultural groups or promoting health awareness among different age groups).

Goal: ENSURE WIDESPREAD AWARENESS OF HEALTH ISSUES AND THE WORK OF THE DEPARTMENT

One outcome of the survey will be a profile of several important aspects of health status of City residents which will be made widely available to the public through media coverage, special reports and presentations, and journal articles. As well, clients of the Department will be made aware of the use of such data in planning programs.

Goal: INCREASED EMPHASIS ON PRIMARY PREVENTION PROGRAMS

Many of the conditions identified through the survey are preventable, yet among the oldest age group the occurrence of these conditions is relatively high. For instance, among respondents 55 years and older, we estimate that 15 percent or 15,000 to 25,000 males and females have heart trouble; 14 percent or 13,000 to 24,000 have persistent cough or shortness of breath; 21 percent or 22,500 to 33,000 have serious back problems; 33 percent or 38,000 to 48,000 have diagnosed hypertension and six percent or 5,000 to 12,000 have cancer. If we examine health practices, it is this oldest age group which tends to be the least likely to take preventive action. Fewer than one third of women in this age group have an annual Pap test, fewer than half have a physician-administered breast examination and fewer than one in

ten do their own breast examination. Even fewer follow preventive dental practices.

Encouragingly, younger people are more likely to observe almost all the health practices, although there is still a sizeable number who do not. For example, we estimate that 15,000 to 29,000 men between 35 and 54 years of age do not have their blood pressure checked annually; 24,000 to 37,000 females in this age group do not have a yearly Pap test; and 53,000 to 76,000 young adults (15 to 34) do not consistently wear their seatbelts.

By helping to identify high risk groups in the City, the Toronto Community Health Survey will assist staff in directing preventive programs to the most appropriate groups. For instance, since it is now known that only twenty percent of women administer a proper breast self-examination, a concerted effort can be aimed at the 198,000 to 220,000 women who do not follow this practice. Special efforts will also be directed to private physicians to encourage them to promote better compliance with primary care measures.

Goal: EVALUATE ALL DEPARTMENTAL PROGRAMS

The first Toronto Community Health Survey will provide a baseline from which to measure progress on specific aspects of health status of City residents. Over time, with successive waves of the survey, it may be possible to determine how effective certain community interventions have been in improving health status. This may be accomplished by over-sampling for targeted groups in future editions of the TCHS.

To conclude: the results of the survey have suggested directions for future programs, and further analysis will sharpen the picture of target groups for these interventions. This information will be integrated into the Department's ongoing planning process and details of specific programs will be incorporated into upcoming special topic reports.

V CONCLUSIONS

This report has had three objectives: to document the Toronto Community Health Survey data base, to present findings on composites of the major health status indicators in the study, and to suggest how the data base can be incorporated into the departmental planning process. Analysis of survey data does not end with the completion of any one report, however: it is like a mine with many seams, and it can sustain several mining operations for a long period of time.

The greatest value in this mine of information may be its capacity to answer a variety of small research questions. It may now be used to fill 'data requests' by department staffers on a daily basis. At a somewhat higher level of abstraction, several analytic reports on special topics are planned. The list of possible topics include:

- health area profiles
- health expectancy analysis
- a profile of high risk groups
- health care utilization patterns
- cardiovascular disease
- substance abuse
- occupational health
- unemployment and health
- perceptions of health status: self-assessment, psychological well-being, and the 'sick role'
- respiratory problems in Toronto
- women's preventive behavior
- disability prevalence
- behavioral risk factors
- social isolation and health status
- educational attainment and preventive health practices

TCHS data also can be used to address one of the most controversial issues in public health: to what extent do culture and socio-economic status influence health status? This is perhaps the widest and deepest seam in the TCHS data, and work on it is already underway.

REFERENCES

1. Aday, Lu Ann; Sellers, Charles; and Andersen, Ronald. "Potentials of Local Health Surveys: A State-of-the-Art Summary." American Journal of Public Health 71 (August, 1981):835-840.

2. Aneshensel, C. et.al. "Telephone Versus In-Person Surveys of Community Health Status." American Journal of Public Health 72 (September, 1982):1017-1021.

3. Banks, M. "Comparing Health and Medical Care Estimates of Phone and Non-Phone Populations." Proceedings of the Survey Research Section of the American Statistical Association. (1983).

4. Bates, David. "City of Toronto Community Health Survey: Sample Description." Downsview: Institute for Behavioural Research, York University, 1983. (mimeographed)

5. Cannell, C. et.al. "An Experimental Comparison of Telephone and Personal Health Survey Data. Vol.1 and 2." Ann Arbor: Survey Research Centre, Institute for Social Research, University of Michigan (1982). (mimeographed)

6. Cannell, C.F.; Groves, R.M.; and Miller, P.V. "Effects of Mode of Data Collection on Health Survey Data." Proceedings of the Social Statistics Section of the American Statistics Association. (1983)

7. Centers for Disease Control. "Behavioral Risk Factor Telephone Survey Procedural Manual." 1982. (mimeographed)

8. Centers for Disease Control. "Behavioral-Risk-Factor Surveillance - Selected States." Morbidity and Mortality Weekly Report Surveillance Summaries. 32 (Supp.1) (February, 1983):11-17

9. Centers for Disease Control. "Behavioral-Risk-Factor Prevalence Surveys - United States, Fourth Quarter, 1982." Morbidity and Mortality Weekly Report. 33 No.18 (May, 1984):247-9

10. Chen, Moon S. Jr.; Bill, Debra. "Statewide Survey of Risk Factor Prevalence: the Ohio Experience." Public Health Reports 98 (September-October, 1983):443-448

11. City of Toronto. Public Health in the 1980's. A Report of the Health Planning Steering Committee to the Local Board of Health. City of Toronto, 1978. Reprinted May 1980.

12. City of Toronto. Annual Statement. Report of the Medical Officer of Health 1982. City of Toronto: Department of Public Health, 1982.

13. City of Toronto. "Departmental Programs Policy Paper". A Report submitted to the Local Board of Health. City of Toronto, November 23, 1982. Revised February 18, 1983. (Mimeographed)

14. City of Toronto. "The Unequal Society: A Challenge to Public Health." A Report submitted to the Local Board of Health and Adopted by City Council. City of Toronto, April 18 and 22, 1983. (Mimeographed)

15. City of Toronto. "Community Health Survey Interviewer Handbook." City of Toronto: Department of Public Health. July, 1983. (mimeographed)

16. City of Toronto. "Planning for Health in the City of Toronto." A Report submitted to the Local Board of Health. December, 1983. (mimeographed)

17. Clark, William A.V.; Levine, Ned; Engelhardt, Rita. "Instruction Manual for Small Area Telephone Surveys, prepared for National Center for Health Statistics." Los Angeles: Institute for Social Science Reseach, University of California at Los Angles, 1980. (mimeographed)

18. Council of American Survey Research Organizations. "On the Definition of Response Rates." A Special Report of the CASRO Task Force on Completion Rates. by Lester R. Frankel, Chairman. New York: The Council of American Survey Research Organizations, 1982.

19. Dillman, Don A. Mail and Telephone Surveys: The Total Design Method. New York: John Wiley and Sons, 1978.

20. Dohrenwend, Bruce P.; and Dohrenwend, Barbara Snell. "Perspectives on the Past and Future of Psychiatric Epidemiology." American Journal of Public Health 72 (November, 1982):1271-1279.

21. Dupuy, Harold J. Formerly Psychological Advisor, National Center for Health Statistics. Interview, 13 December, 1983.

22. Fitti, J.E. "Some Results from the Telephone Health Interview System." Proceedings of the Survey Research Section of the American Statistical Association. (1983).

23. Government of Canada. Report of the Parliamentary Committee on the Participation of Visible Minorities in Canadian Society. Ottawa: Queens Printer, 1984.

24. Groves, Robert M.; and Kahn, Robert L. Surveys by Telephone: A National Comparison with Personal Interviews. New York: Academic Press, Inc., 1979.

25. Groves, R.; and Magilavy, L. "Increasing Response Rates in Telephone Surveys: A Door in the Face for Foot-in-the-Door?" Public Opinion Quarterly 45 (Fall, 1981):346-358.

26. Health and Welfare Canada. The Health of Canadians: Report of the Canada Health Survey. Ottawa: Health and Welfare Canada, 1981.

27. Jordan, L.A. et.al. "Response Styles in Telephone and Household Interviewing: A Field Experiment." Public Opinion Quarterly 44 (1980):210-222.

28. Massey, J.; Barker, P.; and Hsuing, S. "An Investigation of Response in a Telephone Survey." Proceedings of the Survey Research Section of the American Statistical Association (1981).

29. McDowell, Ian; and Praught, Ed. "On the Measurement of Happiness: An Examination of the Bradburn Scale in the Canada Health Survey." American Journal of Epidemiology 116:No.6 (1982):949-958.

30. MGT of America, Inc. "Florida Statewide Risk Factor Prevalence Survey: Final Report." A Report Prepared for the Health Education - Risk Reduction Program, Department of Health and Rehabilitation Services. Tallahasee, Florida: June 1982.

31. Miller, P. "A Comparison of Telephone and Personal Interviews in the Health Interview Survey." A paper presented at the HSRM Conference, Washington, D.C., May, 1982.

32. National Center for Health Statistics. Anthony F. Fazio. A Concurrent Validational Study of the NCHS's General Well-Being Schedule. Vital and Health Statistics. Series 2-No.73. Washington, D.C.: Public Health Service, 1977.

33. National Center for Health Statistics, Kathleen M. Danchik. Highlights from Wave I of the National Survey of Personal Health Practices and Consequences: United States, 1979. Data from the National Health Survey. Series 15-No.1. Washington, D.C.: Public Health Service, 1981.

34. National Center for Health Statistics. "Response Rates and Nonresponse Bias in the National Survey of Personal Health Practices and Consequences, United States, 1980." Working Paper Series No.12. Washington, D.C.: Public Health Service, 1982.

35. National Center for Health Statistics, P.W. Reiss. Americans Assess Their Health: United States, 1978. Vital and Health Statistics. Series 10-No.142. Washington, D.C.: Public Health Service, 1983.

36. National Center for Health Statistics. "National Survey of Personal Health Practices and Consequences: A Brief Description." Washington, D.C.: Public Health Service, 1983. (mimeographed)

37. O'Loughlin, Jennifer L. "Correlates of Psychological Well-Being in a Population Sample." A Masters Thesis Submitted to the Department of Epidemiology and Health, McGill University. Montreal: 1983.

38. Opzoomer, Ann. "Activity Limitation in the Territory of the Montreal General Hospital Department of Community Health." A report prepared for the Department of Community Health, Montreal General Hospital, Montreal: September, 1982.

39. Pineo, Peter C.; Porter, John; and McRoberts, Hugh A. "The 1971 Census and the Socioeconomic Classification of Occupations." Canadian Review of Sociology and Anthropology 14:No.1(1977):91-102.

40. Province of Ontario, The Drug Benefit Formulary. Toronto: Ministry of Health, Province of Ontario; 1983.

41. Siemiatycki, J. "A Comparison of Mail, Telephone and Home Interview Strategies for Household Health Surveys." American Journal of Public Health 69 (March, 1979):238-245.

42. Simmons, James W. Patterns of Residential Movement in Metropolitan Toronto. Toronto: University of Toronto Press, 1974

43. Spitzer, Walter O. "A Study of the Health Status of Residents of the Junction Triangle, Toronto." A report prepared for the Department of Public Health, City of Toronto. Toronto: April, 1984.

44. Statistics Canada. Standard Occupational Classification 1980. Ottawa: Statistics Canada, 1981.

45. Statistics Canada. Household and Facilities Survey. Catalogue No.64204, Ottawa: Statistics Canada: 1983.

46. Steeh, C.G. "Trends in Non-Response Rates 1952-1979." Public Opinion Quarterly 45 (Spring, 1981):40-57.

47. Thornberry, O.; and Poe, G. "NCHS Research on the Telephone Interview: Some Observations." Proceedings of the Survey Research Section of the American Statistical Association" (1983).

48. Tucker, C. "Interviewer Effects in Telephone Surveys."Public Opinion Quarterly 47 (Spring, 1983):84-95.

49. Weeks, Michael F. et al. "Personal Versus Telephone Surveys for Collecting Household Health Data at the Local Level." American Journal of Public Health 73 (December, 1983):1389-1394.

50. White, Andrew A. "Response Rate Calculation in RDD Telephone Health Surveys; Current Practices." Proceedings of the Survey Research Section of the American Statistical Association. (1983).

51. Wilkins, R.; and Adams, O. "Health Expectancy in Canada, Late 1970's: Demographic, Regional and Social Dimensions." American Journal of Public Health 73 (September, 1983):1073-1080.

52. Wilson, Ronald W.; and Elinson, Jack. "National Survey of Personal Health Practices and Consequences: Background, Conceptual Issues, and Selected Findings." Public Health Reports 96 (May-June, 1981):218-225.

APPENDIX A

Four Versions of Respondent Selection Table Used in Trodahl and Carter Procedure

Total number of men in household	Total Number of Adults in Household			
	1	2	3	4 or more
Version I				
0	Woman	Oldest woman	Youngest woman	Youngest woman
1	Man	Man	Man	Oldest woman
2		Oldest man	Youngest man	Youngest man
3			Youngest man	Oldest man
4+				Oldest man
Version II				
0	Woman	Youngest woman	Youngest woman	Oldest woman
1	Man	Man	Oldest woman	Man
2		Oldest man	Woman	Oldest woman
3			Youngest man	Woman or oldest woman
4+				Oldest man
Version III				
0	Woman	Youngest woman	Oldest woman	Oldest woman
1	Man	Woman	Man	Youngest woman
2		Youngest man	Oldest man	Oldest man
3			Oldest man	Youngest man
4+				Youngest man
Version IV				
0	Woman	Oldest woman	Oldest woman	Youngest woman
1	Man	Woman	Youngest woman	Man
2		Youngest man	Woman	Youngest woman
3			Oldest man	Woman or youngest woman
4+				Youngest man

Appendix B

95% Confidence Intervals
Around Percentage Values for Selected Sample Sizes

	For Observed Percentages From 1% to 50%, Read Down The Appropriate Column:							
	1%	3%	5%	10%	15%	20%	30%	50%
Sample Size	- +	- +	- +	- +	- +	- +	- +	+ -
100	0.8 4.4	2.0 5.5	2.8 6.2	4.5 7.4	5.7 8.3	6.7 8.9	8.1 9.6	9.6
200	0.7 2.6	1.6 3.4	2.3 4.0	3.4 4.9	4.3 5.6	5.0 6.1	5.9 6.7	6.9
300	0.7 1.9	1.4 2.6	1.9 3.1	2.9 3.9	3.6 4.5	4.1 4.9	4.9 5.4	5.6
400	0.6 1.5	1.3 2.2	1.7 2.6	2.6 3.3	3.2 3.8	3.6 4.2	4.3 4.7	4.9
500	0.6 1.3	1.2 1.9	1.6 2.3	2.3 2.9	2.9 3.4	3.3 3.7	3.9 4.2	4.4
700	0.5 1.0	1.0 1.5	1.4 1.9	2.0 2.4	2.5 2.8	2.8 3.1	3.3 3.5	3.7
1000	0.5 0.8	0.9 1.3	1.2 1.5	1.7 2.0	2.1 2.3	2.4 2.6	2.8 2.9	3.1
	+ -	+ -	+ -	+ -	+ -	+ -	+ -	+ -
	99%	97%	95%	90%	85%	80%	70%	50%
	For Observed Percentages From 50% to 99%, Read Up The Appropriate Column:							

NOTE: The values in this table, when added to and subtracted from an observed percentage, establish the 95% confidence interval, calculated as 1.960 standard errors assuming simple random sampling. Table values were calculated using the following formulas:

$$PL = p - 1.96\sqrt{(PL\ (1-PL)\ /\ N)}$$

$$PU = p + 1.96\sqrt{(PU\ (1-PU)\ /\ N)}$$

where PL is the lower limit of the confidence interval and PU is the upper limit of the confidence interval.

SOURCE: Lloyd D. Johnston et al, Drug Use Among American High School Students 1975-1977 (Rockville, Maryland: National Institute on Drug Abuse, Public Health Service, U.S. Department of Health, Education and Welfare (1978)).

Appendix C

COMMUNITY HEALTH SURVEY

DEPARTMENT OF PUBLIC HEALTH

CITY OF TORONTO

INTERVIEWER I.D. __ __

RESPONDENT I.D. __ __ __ __

INTERVIEW DATE __ __ __ __ __ __
Y Y M M D D

RESULT CODE __ __

POINT A

1. First, compared to other persons your age, would you say your health is excellent, good, fair, or poor?

A.	Excellent	1	
B.	Good	2	
C.	Fair	3	(__)
D.	Poor	4	
	Don't know	8	
	No response	9	

---

2. What would you say is the main reason your health is _____? (__ __)
FILL IN FROM QUESTION 1

_____ __ __
NOTE BRIEFLY; CODE LATER

---

3. In the past two weeks, how many days were you off work or school because you weren't feeling well, for example with a cold or the flu, or because you just were having a bad day?

_____
ENTER NUMBER
OF DAYS

None (Code = 00)
Not applicable (Code = .7)
Don't know (Code = .8)
No response (Code = .9)

(__ __)

POINT B

Now I'd like to ask you some specific questions about your health, starting with hypertension or high blood pressure.

---

4. How long ago did you last have your blood pressure checked?

DON'T READ LIST

A. Within last 6 months..... 1
_____ to Present

ENTER DATES FROM CARD

B. 7-12 months ago..... 2
_____ to _____

C. 1-2 years ago..... 3 (__)
_____ to _____

D. More than 2 years ago..... 4
_____ to _____

E. Never had my blood pressure checked..... 7
F. Don't remember/Don't know..... 8
G. No response..... 9

---

5. Have you ever been told by a doctor, nurse, or someone else that you have high blood pressure?

PROBE FOR DOCTOR, NURSE OR OR SOMEONE ELSE IF NECESSARY

A. No, GO TO POINT C..... 1
B. Yes, I have been told by a doctor..... 2
C. Yes, I have been told by a nurse..... 3
D. Yes, I have been told by someone else... 4 (__)
E. Don't remember/Not sure/Don't know..... 8
F. No response, GO TO POINT C..... 9

---

6. Has any medication ever been prescribed for your high blood pressure?

A. Yes..... 1
B. No, GO TO POINT C..... 2
C. Don't remember/Not sure/Don't know, GO TO POINT C..... 8 (__)
D. No response, GO TO POINT C..... 9

---

7. Are you taking that medication now?

A. Yes, most of the time GO TO QUESTION 9..... 1
B. Yes, but only occasionally GO TO QUESTION 9..... 2
C. No..... 3 (__)
D. Don't know..... 8
E. No response GO TO QUESTION 9..... 9

PROBE FOR "MOST OF THE TIME" OR "ONLY OCCASIONALLY" IF NECESSARY. IF ANSWER IS "YES" USE "YES, MOST OF THE TIME".

---

8. Did you stop on the advice of your physician?

A. Yes..... 1
B. No..... 2
C. Don't remember/Don't know..... 8 (__)
D. No response..... 9

---

9. As far as you know, is your blood pressure still high?

A. Yes, still high..... 1
B. N[illegible]..... 2
C. D[illegible] know for sure..... 8 (__)
D. No response..... 9

POINT C

The next few questions refer to certain other health problems. I will ask if you have ever had these health problems, and then I will ask you for a little information about each one.

---

10. Do you have diabetes?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

GO TO QUESTION 13

---

11. At what age were you first diagnosed?

ENTER AGE IN YEARS

At birth (Code = 01)
Never diagnosed (Code = .7)
Don't know (Code = .8)
No response (Code = .9)

__ __ (__ __)

---

12. Do you use or take insulin?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

V

13. Do you have trouble with your heart (e.g., have you ever had a heart attack, angina, heart failure, or rheumatic heart disease)?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (_)
D. No response..... 9

GO TO QUESTION 15

14. At what age were you first diagnosed?

ENTER AGE IN YEARS

At birth (Code = 01)
Never diagnosed (Code = .7)
Don't know (Code = .8)
No response (Code = .9)

_ _ (_ _)

15. Have you ever had asthma?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (_)
D. No response..... 9

GO TO QUESTION 17

16. At what age were you first diagnosed?

ENTER AGE IN YEARS

At birth (Code = 01)
Never diagnosed (Code = .7)
Don't know (Code = .8)
No response (Code = .9)

_ _ (_ _)

17. Do you have hay fever or other allergies?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (_)
D. No response..... 9

GO TO QUESTION 19

18. At what age were you first diagnosed?

ENTER AGE IN YEARS

At birth (Code = 01)
Never diagnosed (Code = .7)
Don't know (Code = .8)
No response (Code = .9)

_ _ (_ _)

19. Do you have emphysema or chronic bronchitis?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

GO TO QUESTION 21

20. At what age were you first diagnosed?

ENTER AGE IN YEARS

At birth (Code = 01)
Never diagnosed (Code = .7)
Don't know (Code = .8)
No response (Code = .9)

__ __ (__ __)

21. Do you suffer from a persistent cough or from shortness of breath?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

GO TO QUESTION 23

22. How long have you had this problem?

DON'T READ LIST

A. less than 6 months..... 1
B. 6 months to 1 year..... 2
C. 1 to 5 years..... 3 (__)
D. 5 years or more..... 4
E. Don't know..... 8
F. No response..... 9

23. Do you have recurring migraine headaches (that is, very serious, recurring headaches which often are accompanied by nausea)?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

GO TO QUESTION 25

24. At approximately what age did you begin to have migraines?

ENTER AGE IN YEARS

At birth (Code = 01)
Never diagnosed (Code = .7)
Don't know (Code = .8)
No response (Code = .9)

-- -- (_ _)

25. Have you ever had serious trouble with the back or spine (e.g., trouble with your disc, in which movement was severely limited)?

A. Yes..... 1
B. No..... 2 (_)
C. Don't know..... 8
D. No response..... 9

26. Have you ever been diagnosed with cancer?

A. Yes..... 1
B. No..... 2 (_)
C. Don't know..... 8
D. No response..... 9

GO TO POINT D

27. Where was the cancer first found?

DON'T READ LIST

CODE ALL MENTIONS; DK = .8 NR = .9

A. Bladder..... 01
B. Brain..... 02
C. Buccal cavity/pharynx..... 03
D. Breast..... 04
E. Cervix..... 05
F. Colon 06
G. Esophagus..... 07 (a) (_ _)
H. Hodgkins disease..... 08
I. Larynx..... 09 (b) (_ _)
J. Leukemia..... 10
K. Liver..... 11 (c) (_ _)
L. Lung/trachea/bronchus..... 12
M. Non-Hodgkins lymphoma..... 13
N. Ovary/fallopian tube..... 14
O. Pancreas..... 15
P. Prostate..... 16
Q. Rectum..... 17
R. Thyroid..... 18
S. Skin..... 19
T. Stomach..... 20
U. Uterus..... 21
V. Other (SPECIFY AND CODE LATER)

POINT D

This next section of the interview deals with the use of pills or medicine. First I'll ask you about any medicines or pills you have used in the last 2 days.

---

28. Yesterday, or the day before, did you take or use any medicines, pills or ointments?

DO NOT INCLUDE VITAMINS

A. Yes..... 1
B. No, GO TO POINT E..... 2 (__)
C. Don't know, GO TO POINT E..... 8
D. No response, GO TO POINT E..... 9

---

29. What kind of medication did you take or use?

ENTER NAME OF EACH MEDICATION AND CODE LATER
(none=00; DK=.8; NR=.9)

a. MEDICINE 1: _____ __ __ (a) (__ __)
b. MEDICINE 2: _____ __ __ (b) (__ __)
c. MEDICINE 3: _____ __ __ (c) (__ __)
d. MEDICINE 4: _____ __ __ (d) (__ __)
e. MEDICINE 5: _____ __ __ (e) (__ __)
f. MEDICINE 6: _____ __ __ (f) (__ __)

---

30. Was this medication, _____, obtained on the advice of a doctor? (FILL IN NAME)

ASK QUESTION FOR EACH MEDICINE

a. MEDICINE 1:

A. Yes..... 1
B. No..... 2 (a) (__)
C. Don't know.....8
D. No response.....9

b. MEDICINE 2:

A. Yes..... 1
B. No..... 2 (b) (__)
C. Don't know.....8
D. No response.....9

c. MEDICINE 3:

A. Yes..... 1
B. No..... 2 (c) (__)
C. Don't know.....8
D. No response.....9

d. MEDICINE 4:

A. Yes.....1
B. No.....2 (d) (__)
C. Don't know.....8
D. No response.....9

e. MEDICINE 5:

A. Yes.....1
B. No.....2 (e) (__)
C. Don't know.....8
D. No response.....9

f. MEDICINE 6:

A. Yes.....1
B. No.....2 (f) (__)
C. Don't know.....8
D. No response.....9

INTERVIEWER: INDICATE NUMBER OF ADDITIONAL MEDICATIONS BEYOND 6

31. Number of additional medications __ __ (__ __)
None (Code = 00)
Don't know (Code = .8)
No response (Code = .9)

POINT E

Next, I'd like to ask you some questions about active physical exercise, exercise which makes you sweat or makes your heart beat very fast.

---

32. How often do you exercise or participate in an active physical sport, such as running, jogging, swimming, bicycling, etc.?

ONLY ONE ANSWER

DON'T READ LIST

ENTER NUMBER OF TIMES; PROBE FOR AVERAGE IF NECESSARY

A. Number of times/week..... __ __
OR
B. Number of times/month..... __ __
OR
C. Less than once/month..... __ __
(Code = 00)
D. Never, GO TO QUESTION 35..... __ __ (__ __)
(Code = .7
E. Don't know, GO TO QUESTION 33.... __ __
(Code = .8)
F. No response, GO TO QUESTION 35... __ __
(Code = .9)

---

33. When you exercise or participate in a physical sport, how long do you usually keep at it?

READ LIST

IF IT VARIES PROBE FOR AVERAGE

A. 1 hour or more..... 1
B. 45 minutes..... 2
C. 30 minutes..... 3 (__)
D. 15 minutes or less..... 4
Don't know..... 8
No response..... 9

---

34. What is your primary form of active physical exercise?

DON'T READ LIST

ONE ANSWER ONLY; IF TWO OR MORE MENTIONED, CODE MOST FREQUENT; IF EQUALLY FREQUENT, CODE MOST ACTIVE

A.	Running, jogging/fast walking.....	1	
B.	Calisthenics.....	2	
C.	Swimming.....	3	
D.	Bicycling.....	4	
E.	Hiking.....	5	
F.	Racquet sport (tennis, squash, etc.)..	6	(_ _)
G.	Team sport (soccer, basketball, football, etc.).....	7	
H.	Other _____ (SPECIFY)	8	
I.	Don't know.....	.8	
J.	No response.....	.9	

---

35. How often do you participate in light physical recreation or hobbies such as dancing, gardening, golfing, bowling, etc.?

ONLY ONE ANSWER

DON'T READ LIST

NUMBER OF TIMES; PROBE FOR AVERAGE IF NECESSARY

A.	Number of times/week.....	_ _	
	OR		
B.	Number of times/month.....	_ _	
	OR		
C.	Less than once/month..... (Code = 00)	_ _	(_ _)
D.	Never..... (Code = .7)	_ _	
E.	Don't know..... (Code = .8)	_ _	
F.	No response..... (Code = .9)	_ _	

---

36. Which of the following best describes the level of physical effort in your work or daily activities?

READ LIST

A.	Light--such as office work, driving, sitting.....	1	
B.	Moderate--such as housework, carpentry, walking...	2	
C.	Heavy--such as pushing or carrying heavy objects..	3	(_)
	Don't know.....	8	
	No response.....	9	

POINT F

The next few questions refer to any limitation in normal activities that you may experience because of your health.

---

37. What were you doing for most of the past 12 months?

READ LIST

A.	Working	1	
B.	Keeping house GO TO QUESTION 40	2	
C.	Retired GO TO QUESTION 42	3	
D.	Going to school GO TO QUESTION 43	4	(__)
E.	Not working because of health GO TO QUESTION 43	5	
F.	Not working for other reasons	6	
	Don't know	8	
	No response	9	

---

38. Are you limited in the kind of work you can do because of your health?

A.	Yes	1	
B.	No	2	
C.	Don't know	8	(__)
D.	No response	9	

---

39. Are you limited in the amount of work you can do because of your health?

A.	Yes	1	
B.	No	2	
C.	Don't know	8	(__)
D.	No response	9	

GO TO QUESTION 43

---

40. Are you limited in the kind of housework you can do because of your health?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

---

41. Are you limited in the amount of housework you can do because of your health?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

GO TO QUESTION 43

---

42. Did you retire because of your health?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

---

43. Do you have any trouble or difficulty with routine physical activities such as (READ SLOWLY) walking, using stairs or inclines, standing or sitting for long periods, bending over or stooping, using your fingers to grasp or handle, lifting or carrying something heavy, or with any other routine physical activity?

A. Yes..... 1
B. No, GO TO QUESTION 45..... 2
C. Don't know..... 8 (__)
D. No response..... 9

---

44. I will read you the list of activities again, and ask you to tell me whether you have a great deal of trouble, some trouble or no trouble at all with each one.

44. a. Walking

A. A great deal of trouble..... 1
B. Some trouble..... 2
C. No trouble..... 3 (a) (__)
Don't know..... 8
No response..... 9

44. b. Using Stairs or inclines

A. A great deal of trouble..... 1
B. Some trouble..... 2
C. No trouble..... 3 (b) (__)
Don't know..... 8
No response..... 9

44. c. Standing or Sitting for long periods

A. A great deal of trouble..... 1
B. Some trouble..... 2
C. No trouble..... 3 (c) (__)
Don't know..... 8
No response..... 9

44. d. Bending over or stooping to pick up something

A. A great deal of trouble..... 1
B. Some trouble..... 2
C. No trouble..... 3 (d) (__)
Don't know..... 8
No response..... 9

44. e. Using your fingers to grasp or handle

A. A great deal of trouble..... 1
B. Some trouble..... 2
C. No trouble..... 3 (e) (__)
Don't know..... 8
No response..... 9

44. f. Lifting or carrying something as heavy as 10 pounds

A. A great deal of trouble..... 1
B. Some trouble..... 2
C. No trouble..... 3 (f) (__)
Don't know..... 8
No response..... 9

44. g. Other (ENTER ANY OTHER ACTIVITY MENTIONED)

_____

A. A great deal of trouble..... 1
B. Some trouble..... 2
C. No trouble..... 3 (g) (__)
Don't know..... 8
No response..... 9

---

45. Is your activity limited in any (other) way because of a disability or because of your health?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

POINT G

Now I'd like to ask you a few questions about smoking.

---

46. Do you smoke any of the following every day?

READ LIST

A. Pipes..... 1
B. Cigars..... 2 (a) (__)
C. Cigarillos..... 3
D. Something else..... 4 (b) (__)
(DO NOT INCLUDE TOBACCO CIGARETTES)
E. None of these..... 5 (c) (__)
Don't know..... 8
No response..... 9

---

47. Have you smoked at least 100 cigarettes in your entire life?

TOBACCO CIGARETTES ONLY

A. Yes..... 1
B. No, GO TO POINT H..... 2 (__)
C. Don't know, GO TO POINT H..... 8
D. No response, GO TO POINT H..... 9

---

48. About how old were you when you first started smoking cigarettes fairly regularly?

A. ENTER AGE IN YEARS..... __ __ (__ __)

B. Never smoked regularly..... __ __
(Code = .7), GO TO POINT H
C. Don't know..... __ __
(Code = .8), GO TO POINT H
D. No response..... __ __
(Code = .9), GO TO POINT H

---

49. Do you smoke cigarettes now?

A. Yes..... 1
B. No, GO TO POINT H..... 2
C. Don't know, GO TO POINT H..... 8 (__)
D. No response, GO TO POINT H..... 9

---

50. On the average, about how many cigarettes a day do you now smoke?

1 PACK = 20 CIGARETTES

ENTER NUMBER OF CIGARETTES..... __ __ (__ __)
Don't know (Code = .8)
No response (Code = .9)

POINT H

Now I'd like to ask you about some of the beverages you drink.

---

51. On an average day, how much of each of the following beverages do you drink?

READ LIST

	a.	cups of coffee..... __ __	(a) (__ __)
DK = .8 NR = .9	b.	cups of tea..... __ __	(b) (__ __)
	c.	glasses of milk..... __ __	(c) (__ __)
	d.	glasses of water..... __ __	(d) (__ __)
	e.	cans or bottles of soft drink..... __ __	(e) (__ __)
	f.	glasses of fruit or vegetable juice. __ __	(f) (__ __)

---

52. Do you drink or cook with bottled water or specially-treated water instead of using water straight from the tap?

	A. Yes, bottled water..... 1	
	B. Yes, specially-treated water.. 2	
GO TO QUESTION 54	C. No..... 3	(__)
	D. Don't know..... 8	
	E. No response..... 9	

---

53. Is there any particular reason why you don't use tap water for cooking or for drinking?

DON'T READ LIST

A.	Don't like taste..... 1	
B.	Concerned about chemicals..... 2	
C.	Other_____ 3	(__)
	_____ (SPECIFY)	
D.	Don't know..... 8	
E.	No response..... 9	

V

---

54. Have you had <u>any</u> alcoholic beverages during the past 12 months?

A. Yes (INCLUDES "USED TO DRINK, BUT STOPPED WITHIN PAST 12 MONTHS")..... 1
B. No alcoholic beverage in past year, GO TO POINT J..... 2
C. Don't know, GO TO POINT J..... 8 (__)
D. No response, GO TO POINT J..... 9
E. Refused, GO TO POINT J..... 6

---

55. How often did you drink <u>any</u> alcoholic beverages in the past 12 months, <u>on the average</u>?

<u>DON'T READ LIST</u>

<u>PROBE FOR AVERAGE NUMBER OF TIMES</u>

A. Number of times/week..... __ __
OR
B. Number of times/month..... __ __
OR
C. Less than once a month..... __ __ (__ __)
(Code = 00)
D. Don't know..... __ __
(Code = .8)
E. No response..... __ __
(Code = .9)
F. Refused to answer..... __ __
(Code = .6)

---

56. A drink is 1 can or bottle of beer, 1 glass of wine, or 1 cocktail or shot of liquor. On the days that you drink, how many drinks do you have per day, <u>on the average</u>?

ENTER NUMBER OF DRINKS..... __ __ (__ __)
Don't know (Code = .8)
No response (Code = .9)
Refused (Code = .6)

---

57. What alcoholic beverages do you usually drink?

READ LIST

CODE ONE ONLY

A.	Beer	1
B.	Wine	2
C.	Liquor or mixed drinks	3
D.	Other	4 (_)
	Don't know	8
	No response	9
	Refused	6

---

58. Not counting small sips, at what age did you start drinking alcoholic beverages?

ENTER AGE IN YEARS..... _ _ (_ _)
Don't know (Code = .8)
No response (Code = .9)
Refused (Code = .6)

POINT J

Now I have a few questions about the health care you have received recently.

---

59. During the past 2 weeks, how many times did you visit a medical doctor?

ENTER NUMBER OF VISITS..... _ _ (_ _)
None (Code = .7)
Don't know (Code = .8)
No response (Code = .9)

---

60. During the past 2 weeks, how many telephone calls were made to get medical advice for you, either by yourself or by someone else in your household?

ENTER NUMBER OF CALLS..... _ _ (_ _)
None (Code = .7)
Don't know (Code = .8)
No response (Code = .9)

---

61. In the past 12 months, have you been a patient in a hospital -- either overnight or as an outpatient?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

GO TO QUESTION 64

62. How many times in the past 12 months were you in a hospital -- either overnight or as an outpatient?

ENTER NUMBER OF TIMES..... __ __ (__ __)
Don't know (Code = .8)
No response (Code = .9)

63. All together, in the past 12 months, how many nights did you spend in a hospital?

ENTER NUMBER OF NIGHTS..... __ __ (__ __)
Don't know (Code = .8)
No response (Code = .9)

64. About how long has it been since you last went to a dentist?

READ LIST

A. less than 1 year (less than 12 months)..... 1
B. 1-2 years (12 months up to 24 months)..... 2
C. 2-4 years (more than 24 months up to 5 years)..... 3 (__)
D. 5 or more years..... 4
E. Never..... 7

65. How often, if ever, do you use dental floss or a water pick?

DON'T READ LIST

A. Everyday..... 1
B. 3-6 times a week..... 2
C. 1-2 times a week..... 3
D. Less than once a week..... 4 (__)
E. Never..... 7
F. Don't know..... 8
G. No response..... 9

66. How often do you use seatbelts when you ride in a car?

READ

A.	Always	1	
B.	Nearly always	2	
C.	Sometimes	3	
D.	Seldom	4	(__)
E.	Never	7	
	Don't know	8	
	No response	9	
	Refused	6	

ASK FEMALES ONLY
MALES - GO TO POINT K

67. When was the last time you had a Pap smear test for cancer?

DON'T READ LIST

A.	less than 1 year ago (less than 12 months)	1	
B.	1-2 years ago (12 months up to 24 months)	2	
C.	2-4 years ago (more than 24 months up to 5 years)	3	
D.	5 or more years ago	4	(__)
E.	Never	7	
F.	Don't know	8	
G.	No response	9	

ASK FEMALES ONLY

68. When was the last time you had a breast examination?

DON'T READ LIST

A.	less than 1 year ago (less than 12 months)	1	
B.	1-2 years ago (12 months up to 24 months)	2	
C.	2-4 years ago (more than 24 months up to 5 years)	3	
D.	5 or more years ago	4	(__)
E.	Never	7	
F.	Don't know	8	
G.	No response	9	

ASK FEMALES ONLY

69. Do you ever examine your own breasts?

A. Yes..... 1

GO TO POINT K

B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

70. Now I'd like to ask you about how regularly you examine your own breasts, and how often. First, do you examine your breasts at the same time each month?

A. Yes..... 1
B. No..... 2
C. Don't know..... 8 (__)
D. No response..... 9

71. And finally, how often do you examine your breasts? Would that be every month, most months, occasionally, or rarely?

A. Every month..... 1
B. Most months..... 2
C. Occasionally..... 3
D. Rarely..... 4 (__)
E. Don't know..... 8
F. No response..... 9

V

POINT K

Now I have a few questions about how you have been feeling lately.

---

72. How often in the past month have you felt cheerful and lighthearted? Would you say...

READ LIST

A.	Very often	1	
B.	Sometimes	2	
C.	Rarely	3	
D.	Never	4	(__)
	Don't know	8	
	No response	9	
	Refused	6	

---

73. How often in the past month have you felt loved and wanted? Would you say...

READ LIST

A.	Very often	1	
B.	Sometimes	2	
C.	Rarely	3	
D.	Never	4	(__)
	Don't know	8	
	No response	9	
	Refused	6	

---

74. How often in the past month have you felt downhearted and blue? Would you say...

READ LIST

A.	Very often	1	
B.	Sometimes	2	
C.	Rarely	3	
D.	Never	4	(__)
	Don't know	8	
	No response	9	
	Refused	6	

---

75. How often in the <u>past month</u> have you felt lonely? Would you say...

READ LIST

A.	Very often	1	
B.	Sometimes	2	
C.	Rarely	3	
D.	Never	4	(__)
	Don't know	8	
	No response	9	
	Refused	6	

---

76. Taking things all together, how would you say things are these days--Would you say you're:

READ LIST

A.	Very happy	1	
B.	Pretty happy	2	
C.	Not too happy	3	(__)
	Don't know	8	
	No response	9	
	Refused	6	

<u>POINT L</u>

I have finished with the questions about your health. These last few questions will provide us with some important background information about you.

---

77. What is your date of birth?

(a) (__ __)

Y Y M M D D (b) (__ __ __ __ __ __)

<u>(a) ENTER YEAR</u>	Don't know	.8
<u>(b) ENTER DATE</u>	No response	.9
	Refused	.6

---

78. In what country were you born?

A.	Canada (Code = 11)	__ __
B.	Other _____ (SPECIFY AND CODE LATER)	(__ __)
	.....GO TO QUESTION 80	
C.	Don't know (Code = .8)	
D.	No responses (Code = .9)	

79. In what Province were you born?

DON'T READ LIST

A.	Newfoundland	01	
B.	Prince Edward Island	02	
C.	Nova Scotia	03	
D.	New Brunswick	04	
E.	Quebec	05	
F.	Ontario	06	
G.	Manitoba	07	(_ _)
H.	Saskatchewan	08	
I.	Alberta	09	
J.	British Columbia	10	
K.	Yukon or Northwest Territories	11	
L.	Don't know	.8	
M.	No response	.9	

GO TO QUESTION 81

---

80. In what year did you first come to live in Canada?

IF AGE IS GIVEN CALCULATE YEAR _ _ _ _ (_ _ _ _)

Don't know (Code = .8)
No response (Code = .9)
Refused (Code = .6)

---

81. What language did you first learn and use in childhood?

DON'T READ LIST

A.	English	01	
B.	Chinese	02	
C.	French	03	
D.	German	04	
E.	Greek	05	(_ _)
F.	Italian	06	
G.	Portuguese	07	
H.	Spanish	08	
I.	Ukrainian	09	
H.	Other _____ (SPECIFY AND CODE LATER)	_	
K.	Don't know	.8	
L.	No response	.9	

82. Health problems are sometimes associated with a person's race, so we would like to ask you which one of the following groups best describes your racial background. Are you...

READ LIST

A.	White or Caucasian	1	
B.	Black or Negro	2	
C.	Native Canadian (that is, Indian or Inuit)	3	
D.	Asian or Oriental	4	
E.	Some other group	5	(__)
	SPECIFY AND RECODE LATER		
	Don't know	8	
	No response	9	
	Refused	6	

---

83. What is your marital status? Are you...

READ LIST

'NOW MARRIED' EXCLUDES SEPARATED

A.	Now married	1	
B.	Separated	2	
C.	Divorced	3	
D.	Widowed	4	(__)
E.	Single (that is, never married)	5	
	Don't know	8	
	No response	9	

---

84. How many adults and how many children are living in your household?

ADULTS IN THIS SURVEY ARE 15+

	ENTER NUMBER OF CHILDREN	__ __	
	ENTER NUMBER OF ADULTS	__ __	(a) (__ __)
	None (Code = 00)		(b) (__ __)
	Don't know (Code = .8)		
	No response (Code = .9)		

---

85. How much do you weigh?

RECORD IN POUNDS OR KGS; CODE 000 IN REMAINING SPACES

Pounds	__ __ __	(a) (__ __ __)
Kgs	__ __ __	(b) (__ __ __)

---

86. How tall are you?

RECORD IN FEET OR CM; CODE 000 IN REMAINING SPACES

__Feet __ __Inches (a) (_ _ _)

_ _ _ __cm (b) (_ _ _)

---

87. What is the highest level of school you completed?

READING OPTIONAL

A.	Some secondary or less..... 1	
B.	Secondary diploma..... 2	
C.	Some post secondary..... 3	
D.	Post secondary certificate or diploma... 4	
E.	Bachelor's degree or equivalent..... 5	(__)
F.	One or more graduate degrees..... 7	
	Don't know..... 8	
	No response..... 9	
	Refused..... 6	

Now I'd like to ask you a few questions about your present and past employment experiences.

---

88. Are you now...

READ LIST

A.	Working..... 1	
B.	Laid off or on strike..... 2	
C.	Retired..... 3	
D.	Unemployed..... 4	(__)
E.	Unable to work (because you are disabled) GO TO QUESTION 93..... 5	
F.	Keeping house GO TO QUESTION 93..... 6	
G.	Full-time student GO TO QUESTION 93..... 7	

---

89 a. What kind of work do (did) you do?
(examples: accounting clerk, sales representative, civil engineer, secondary school teacher, garage foreman/woman, metal worker)

_____ - - - - - (- - - - -)

ENTER FULL DESCRIPTION AND CODE LATER

---

89 b. In this work, what are (were) your most important activities or duties? (examples: verifying invoices, selling electrical tools, managing the research department, teaching mathematics, supervising auto mechanics, operating lathe. If in the armed forces, give rank)

_____

ENTER FULL DESCRIPTION AND CODE ABOVE

---

89 c. In what kind of business, industry or service do (did) you work? (Examples: paper box manufacturing, road construction retail shoe store, secondary school)

_____

ENTER FULL DESCRIPTION AND CODE ABOVE

---

89 d. In this job, are (were) you mainly.....

READ LIST

A. Working for wages, salary, tips or commission?.....1
B. Working without pay in a family business?.....2
C. Self-employed without paid help?.....3
D. Self-employed with paid help?.....4

_____

CIRCLE CORRECT NUMBER AND USE TO CODE OCCUPATION, ABOVE

_____

_____

IF RETIRED, GO TO QUESTION 92

_____

90. In your current job, are you exposed to any special risk of accidents or injuries or to any substance that could endanger your health?

	A. Yes..... 1	
GO TO QUESTION 92	B. No..... 2	
	C. Don't know..... 8	(_)
	D. No response..... 9	

91. To what kind of risk or dangerous substance are you exposed?

A. _____ (SPECIFY AND CODE LATER) — — (e.g. excessive noise, video-display terminal, open trench, toxic chemical -- specify further, if possible) (_ _)

B. Don't know (Code = .8)

C. No response (Code = .9)

V

92. How many hours per week do (did) you usually work at your job?

ENTER HOURS PER WEEK
Don't know (Code = .8)
No response (Code = .9) — — (_ _)

93. Are you covered by OHIP?

A.	Yes..... 1	
B.	No..... 2	
C.	Don't know..... 8	(_)
D.	No response..... 9	

94. Finally, because income is sometimes related to health, I'd like to ask you a question about income. How much income did you and the other members of your household receive last year (that is, the year ending December 31, 1982) not just from wages but <u>from all sources</u>, before taxes and other deductions were made. We are interested in your <u>total family income</u>. Please tell me the figure to the nearest thousand dollars.

ENTER NUMBER OF THOUSANDS $__ __ __$ thousand (__ __ __)
.....GO TO QUESTION 96
Don't know (Code = .8)
No response (Code = .9)
Refused (Code = .6)

IF RESPONDENT DOESN'T KNOW OR REFUSES TO ANSWER, GO TO NEXT QUESTION ....

---

95. We don't need the exact figure; could you tell me which of these broad categories it falls into.....

<u>READ LIST</u>

A.	Less than $10,000	1	
B.	Between $10,000 and 20,000	2	
C.	Between $20,000 and $30,000	3	
D.	Between $30,000 and $50,000	4	
E.	More than $50,000	5	(__)
	Don't know	8	
	No response	9	
	Refused	6	

96.

INTERVIEWER: INDICATE SEX OF RESPONDENT (ASK IF NECESSARY)

A.	Male	1	(__)
B.	Female	2	

---

97. a. Are there any other telephone numbers which can be used to reach this household?

Yes, GO TO NEXT QUESTION
No, Code (97b) "1" and GO TO QUESTION 98

97. b. How many telephone numbers will reach this household?

DIFFERENTIATE BETWEEN TELEPHONE NUMBERS AND TELEPHONE SETS IF NECESSARY. INCLUDE ALL TELEPHONE NUMBERS THAT CAN REACH HOUSEHOLD

Total Telephone Numbers..... __ (__)

---

98. a. So that we can determine which of the four Toronto health areas you live in, would you please tell me your postal code?

ENTER POSTAL CODE — — — — — — (_ _ _ _ _ _ _)

Don't know/not sure (Code = .8)....GO TO QUESTION 99
No response (Code = .9).....GO TO QUESTION 100

98. b. I would like to make sure that I have it down correctly. That was...

REPEAT POSTAL CODE BACK TO RESPONDENT, SLOWLY.
GO TO POINT M

---

99. Would you please tell me your street address....

— ENTER CODES TO LEFT

ENTER NUMBER AND STREET
..... GO TO POINT M
Don't know (Code = .8)
No response (Code = .9)

100. a. Would you please tell me the major intersection that is nearest to where you live...

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _

AND

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _

ENTER TWO STREETS WHICH INTERSECT
(e.g. Main and Danforth; St. Clair and Avenue Road)
Don't know (Code = .8)
No response (Code = .9)

ENTER CODES TO LEFT

100. b. Are you north or south of that intersection?

A.	North	1	
B.	South	2	
C.	Don't know	8	(__)
D.	No response	9	

100. c. Are you east or west of that intersection?

A.	East	1	
B.	West	2	
C.	Don't know	8	(__)
D.	No response	9	

POINT M

This concludes the interview. Again, I want to stress that the information you have given us will be kept strictly confidential and the results will only be released in a summary form where your responses cannot be identified.

Do you have any comments or any questions you would like to ask me?

Thank you very much for your assistance. We greatly appreciate your time and cooperation.